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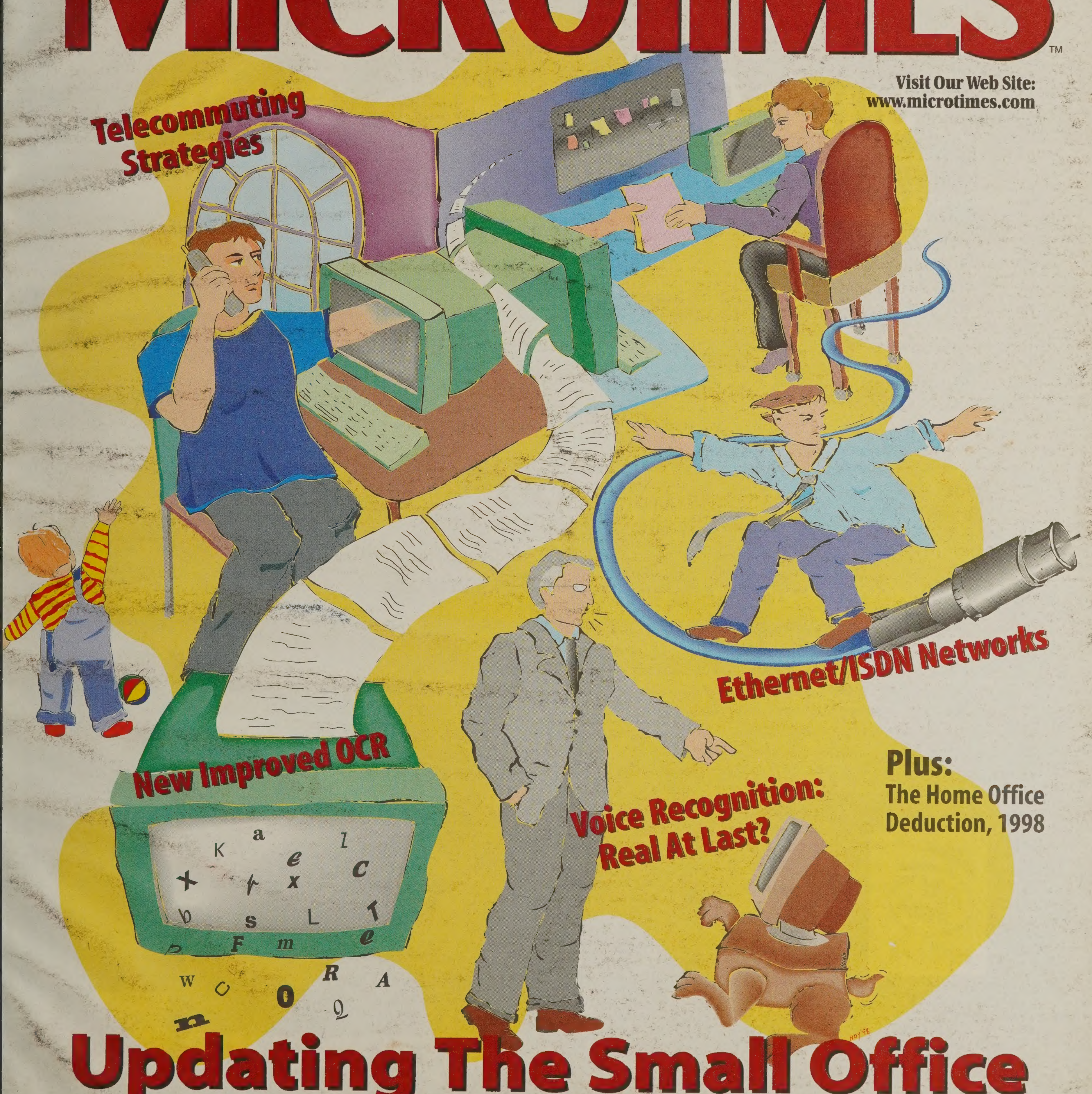

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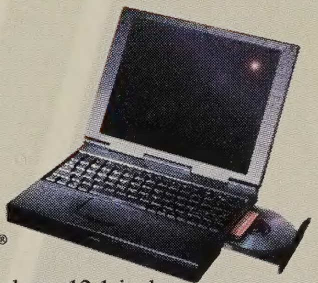

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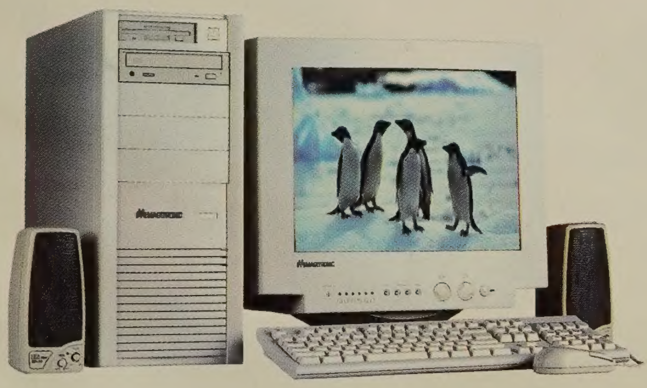

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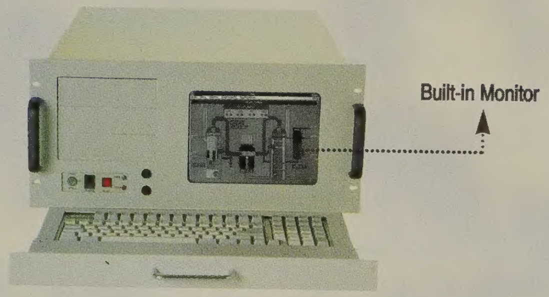

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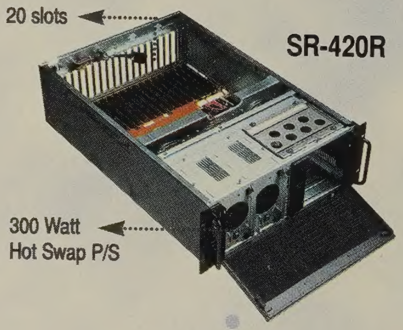

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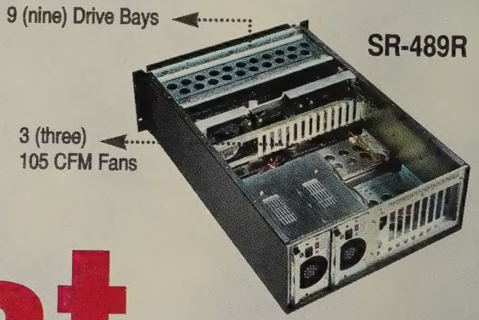

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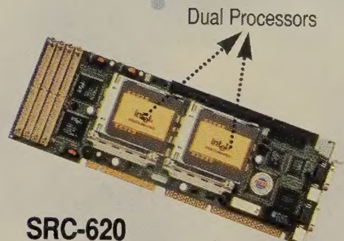

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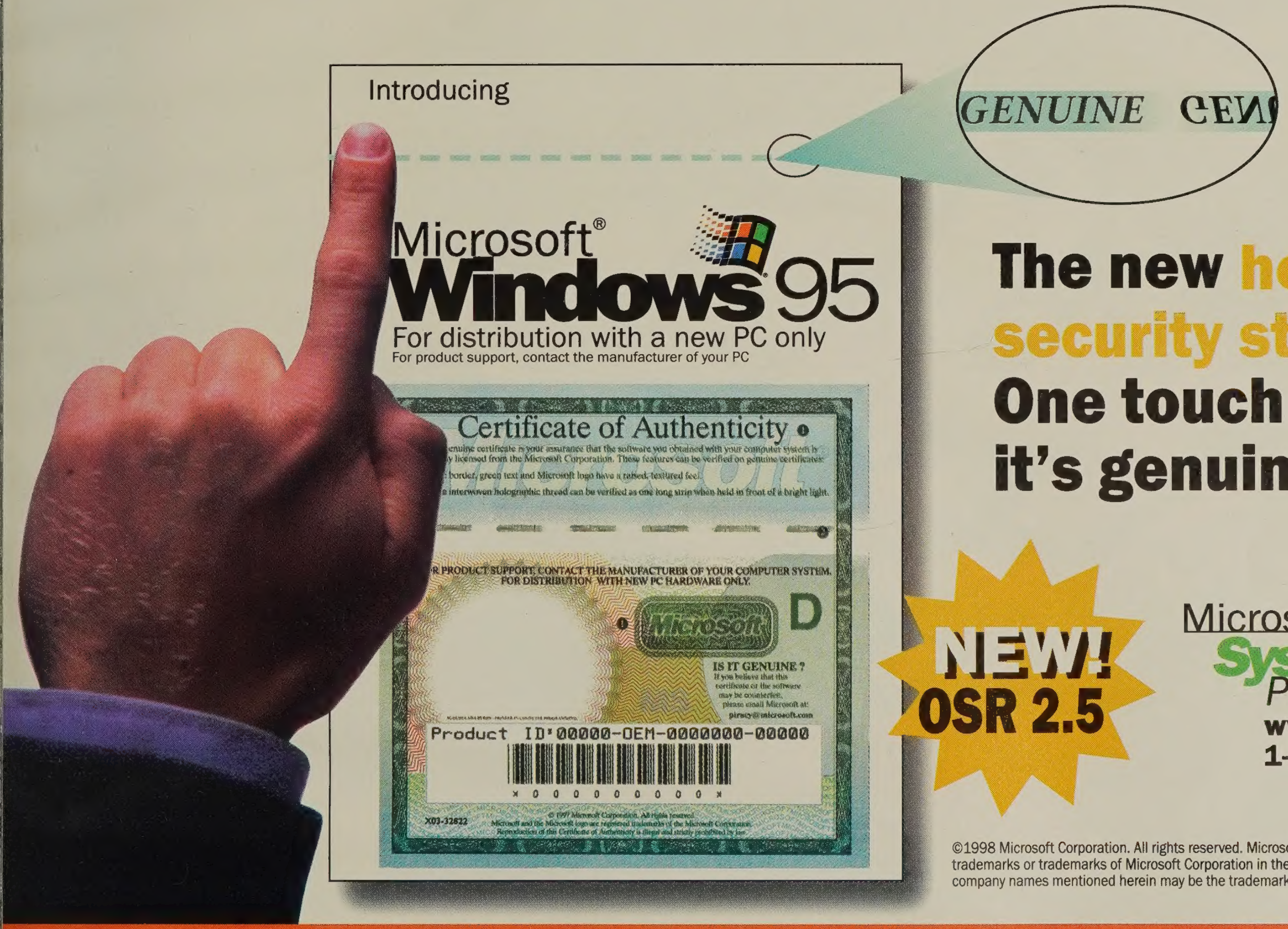

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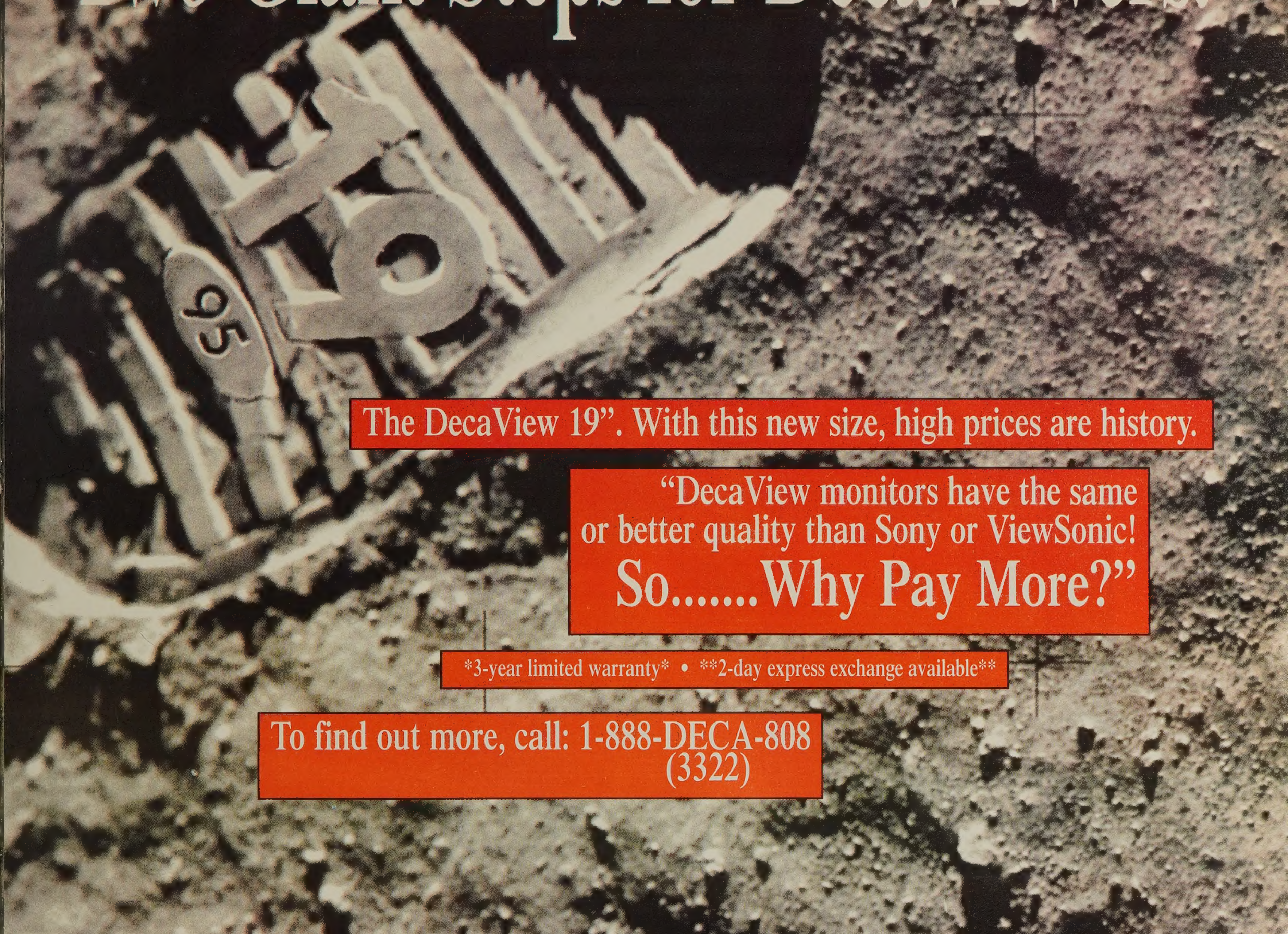

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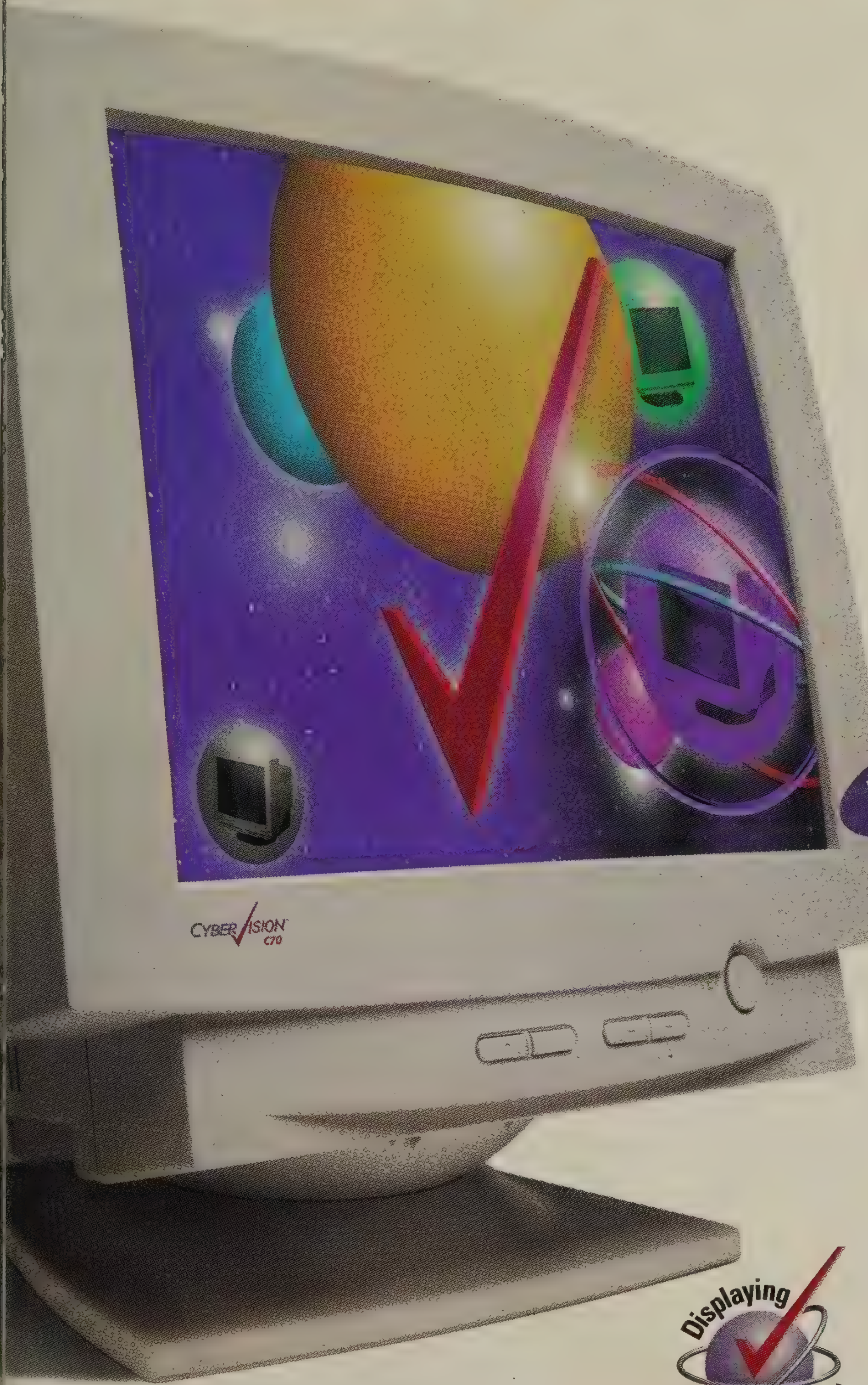

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Refresh Rate/Resolution	80Hz/800x600	85Hz/800x600	87Hz/1024x768	87Hz/1024x768	87Hz/1024x768	75Hz/1280x1024
Horizontal Scan Frequency	30-50kHz	30-50kHz	30-70kHz	30-70kHz	30-70kHz	30-95kHz
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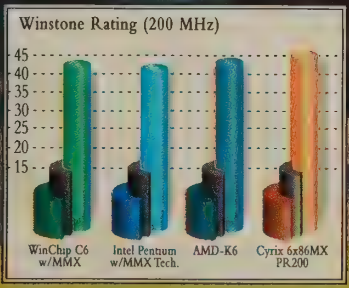

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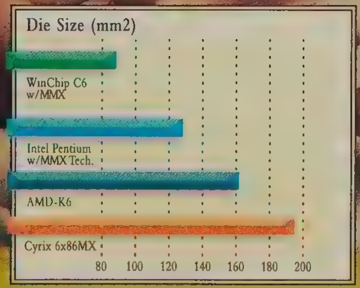

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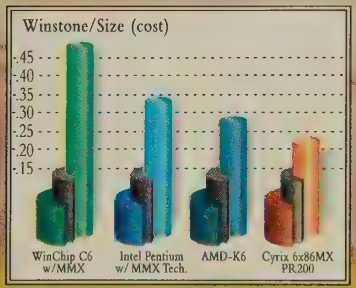

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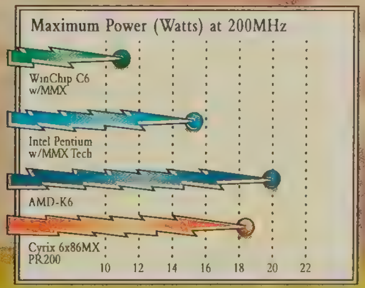

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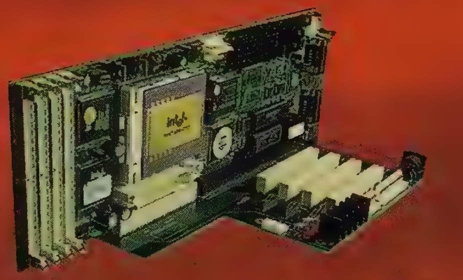

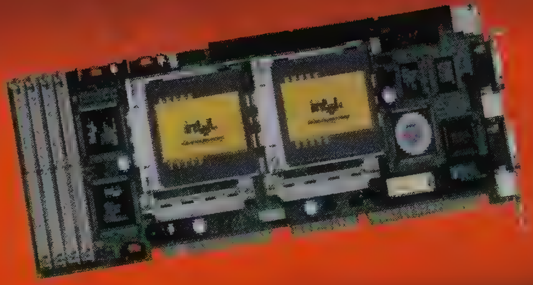

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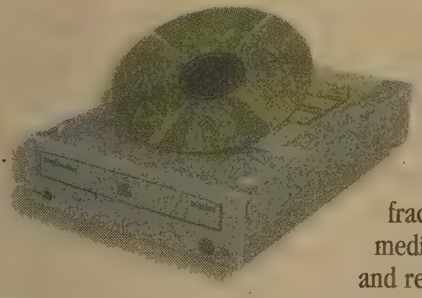

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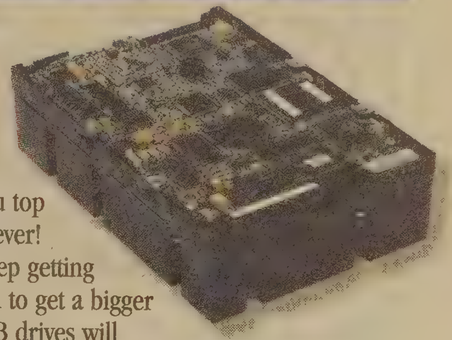

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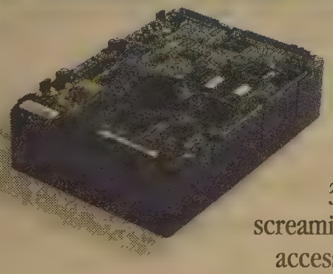

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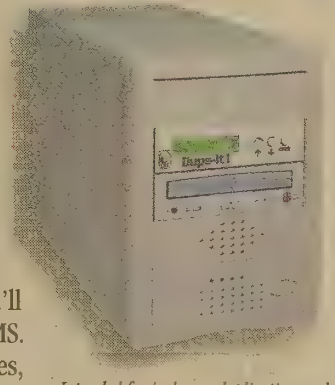

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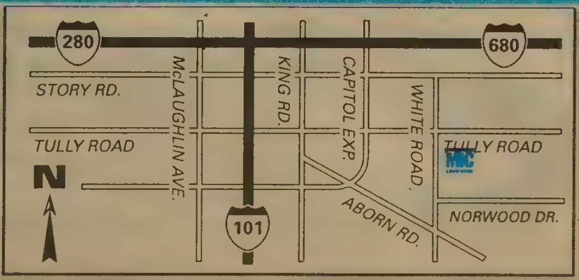

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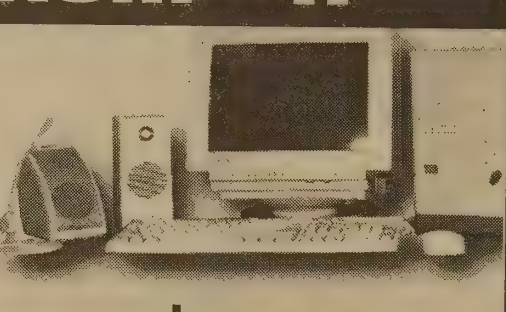

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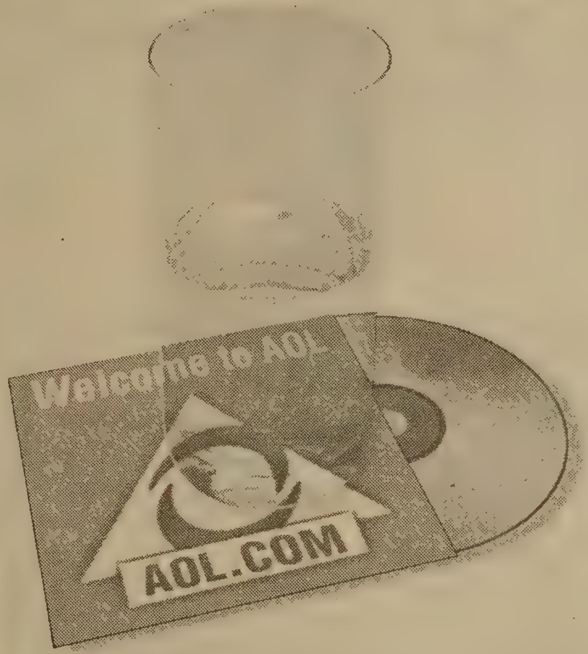

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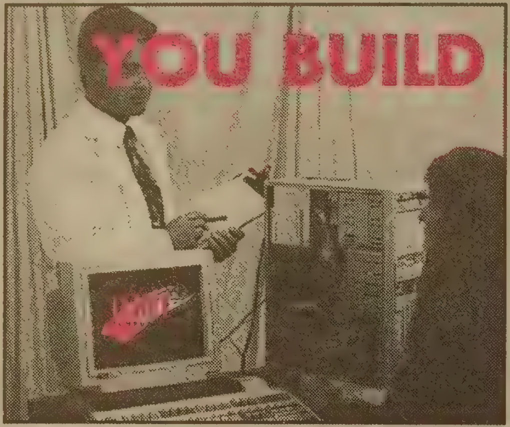

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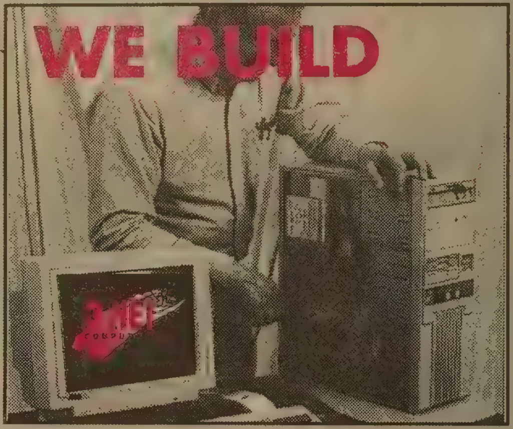

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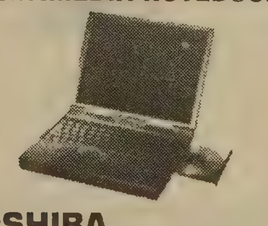

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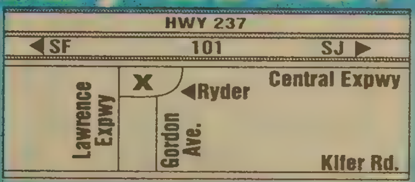

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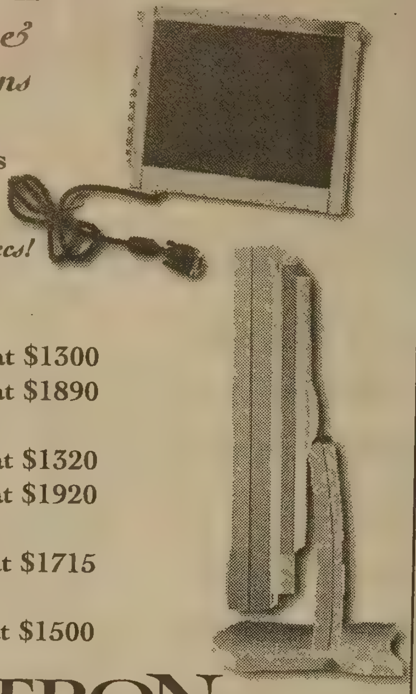

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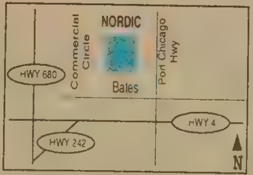

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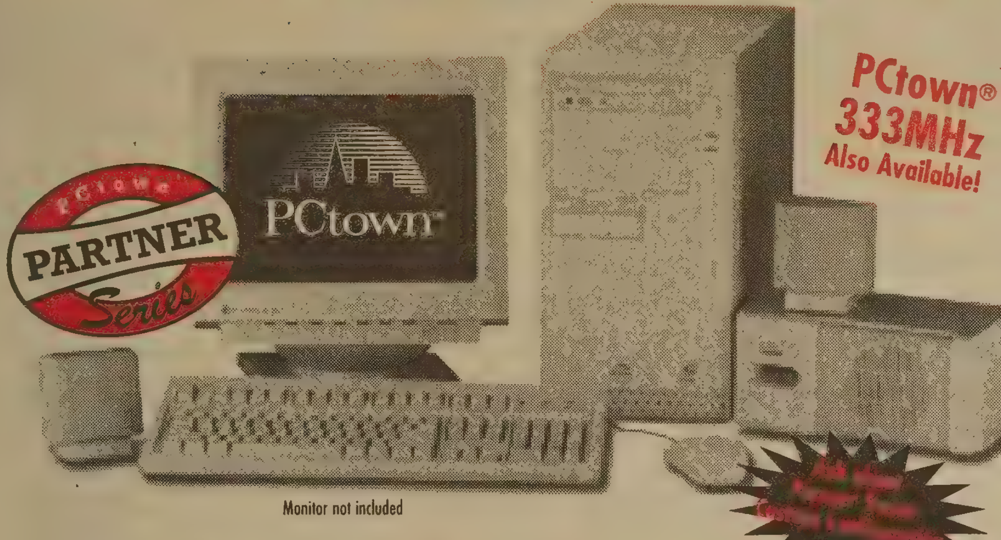

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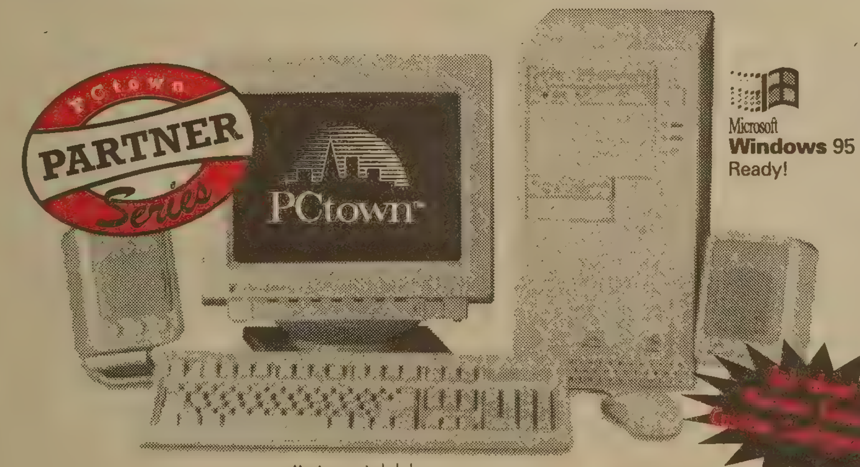

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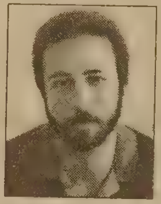
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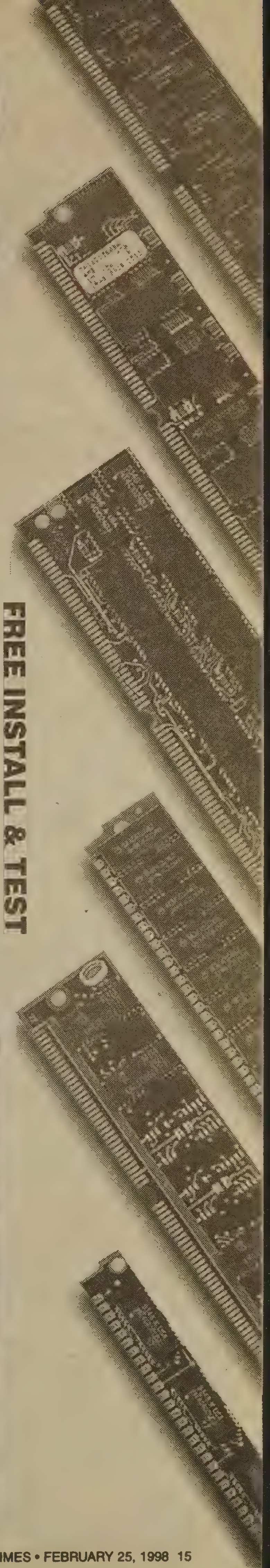

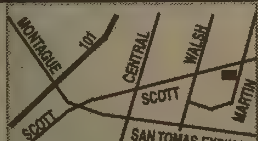

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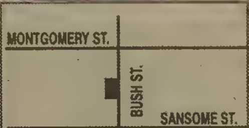

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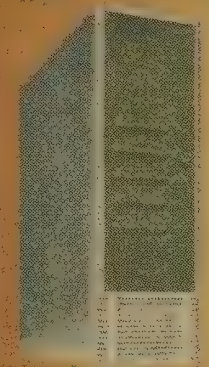

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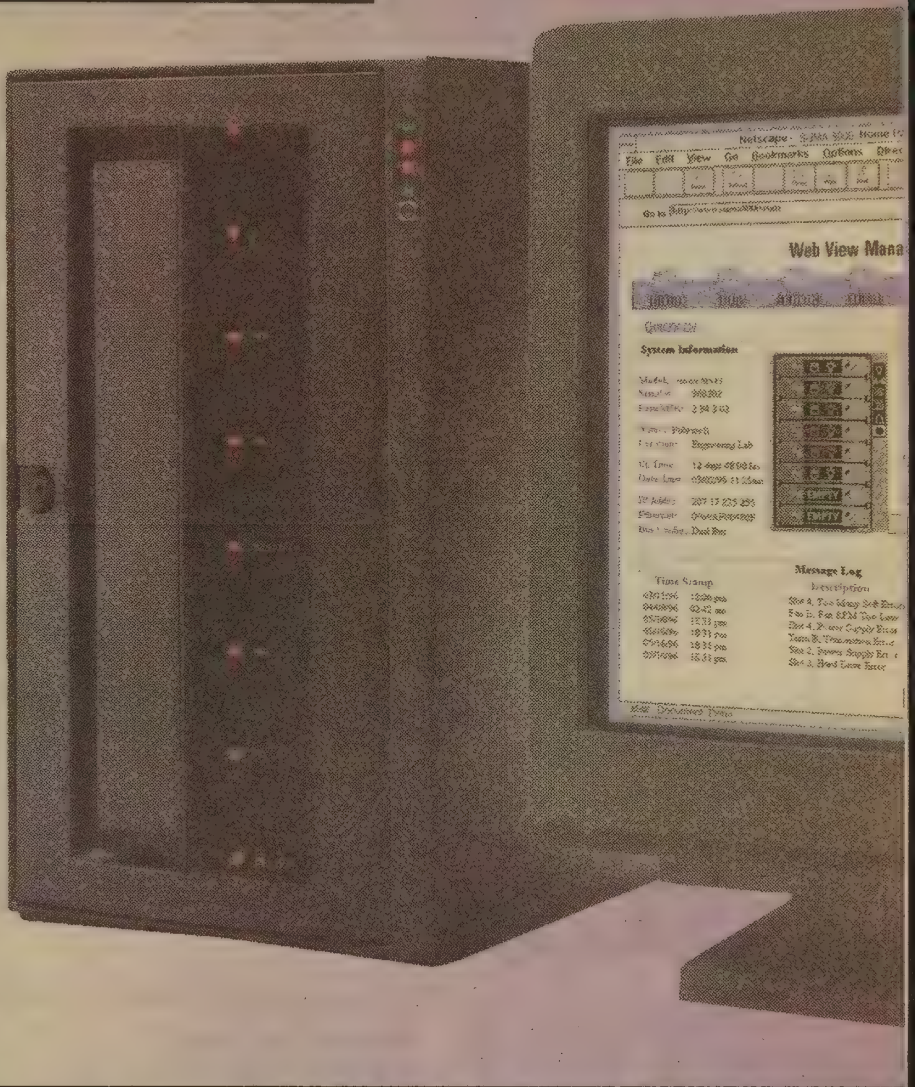

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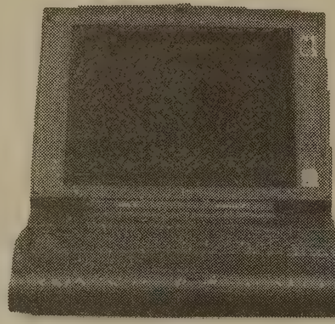

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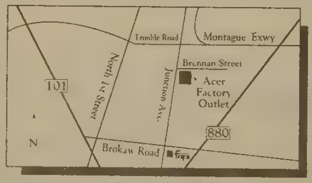

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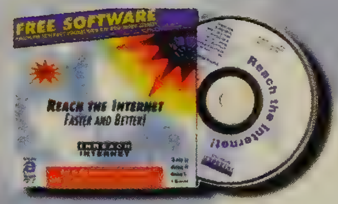

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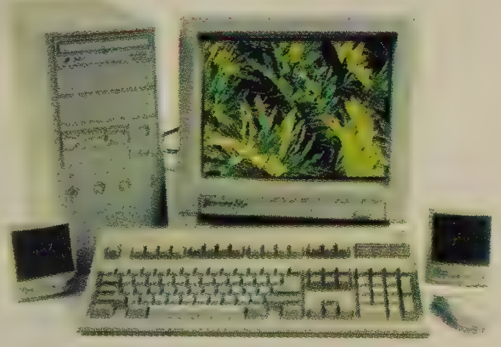

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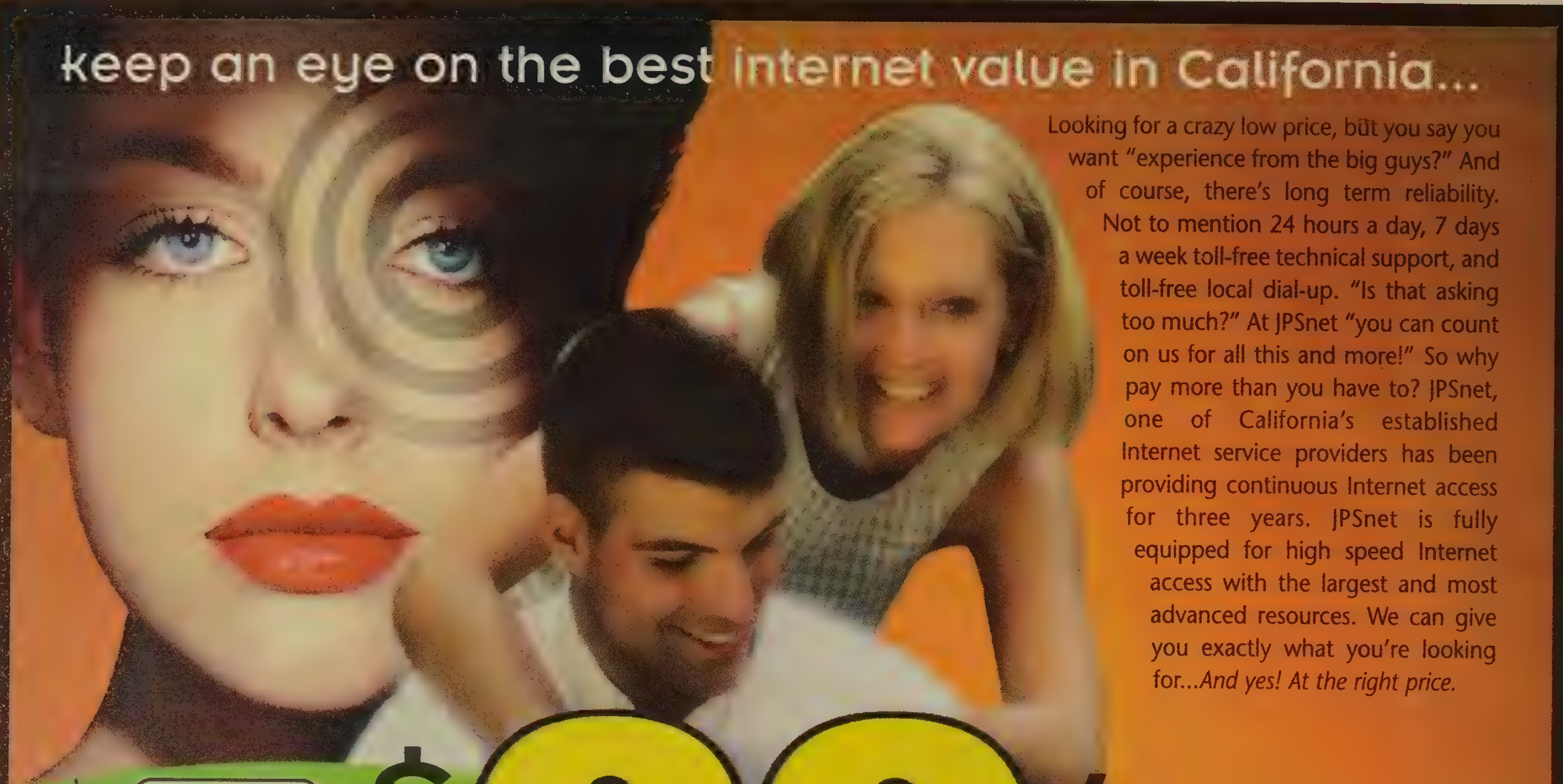

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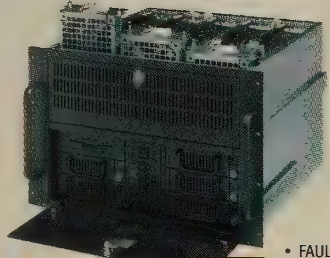

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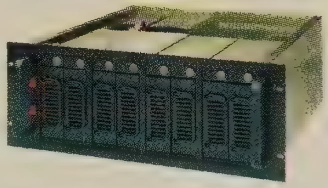

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RAID

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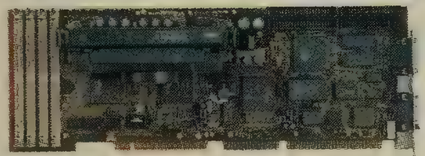

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SBC - Pentium® MMX

MMX

5 WARRANTY

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- **Memory:** Up to 384MB- FPM, EDO or ECC memory
- **BIOS:** AWARD Plug & Play BIOS
- **Chipset:** Intel 430HX Chipset
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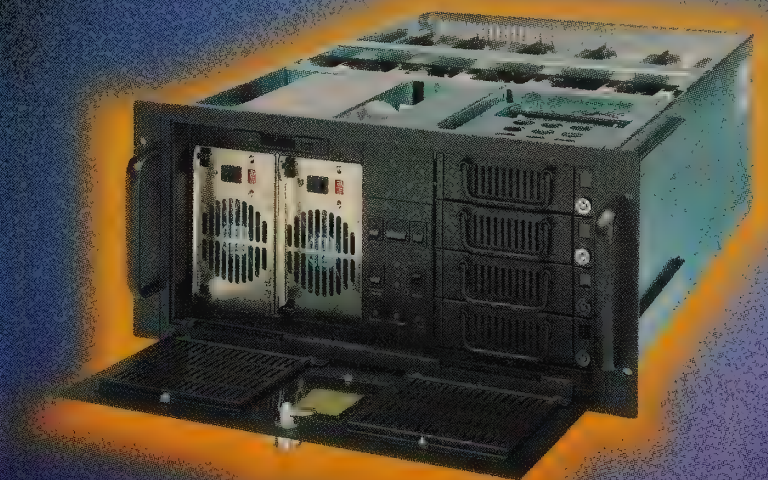
Fault Tolerant CT/Network Server



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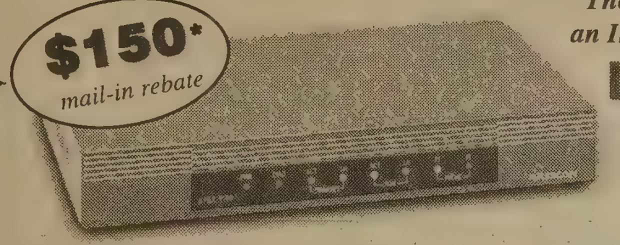

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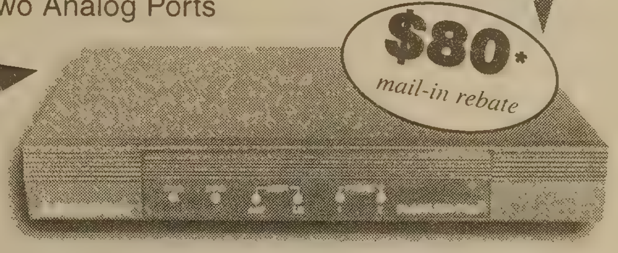

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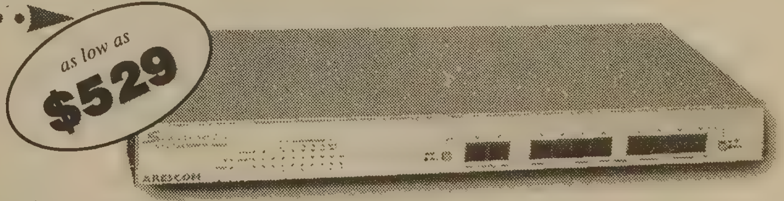

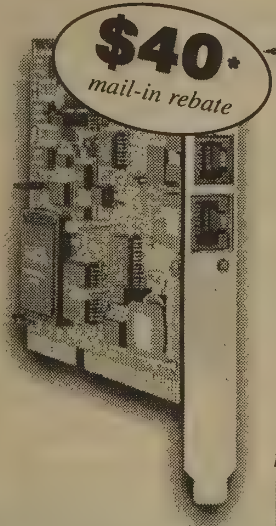

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News and Views

BY PAUL HOFFMAN

Industry Insights

Arrogance Will Cost Microsoft In The Long Run—A Lesson From The Tobacco Industry

Microsoft's recent spate of arrogance is already starting to show that the company will have to deal with a loss of stature in the coming years.

To be sure, Microsoft's nastiness with the government, its customers, and its competitors is not likely to have any short-term effect on its balance sheet. However, the "no one matters except us" attitude that they have been putting out to the public will come back to haunt them in the coming years.

The PC industry has a notoriously short memory span, but Microsoft's recent acts will last much longer than they might have because they ended up on the front page of every major newspaper and on television news shows. As little as two years ago, Bill Gates was portrayed as a brilliant nerd who became rich by being smart; now he and his top executives are portrayed as bullies who think they're above everyone else.

> As little as two years ago, Bill Gates was portrayed as a brilliant nerd who became rich by being smart; now he and his top executives are portrayed as bullies who think they're above everyone else.

The long-term consequences of this kind of reputation can be seen in other industries where once-powerful titans are now shunned. The tobacco industry is a classic example of this. They spent so much time bullying Congress and the courts, even smokers are turning against them. In the same way, Microsoft's primary customers, computer manufacturers and computer users, have an uneasy feeling about the company and are starting to look around for serious alternatives. The fact that they are finding none is a reflection on Microsoft's monopolistic tendencies.

Short Term Face-Saving

As explained in earlier columns, the US Justice Department filed an antitrust action against Microsoft late last year for the way Microsoft bundled Internet Explorer (IE) with Windows 95. The federal judge in that case ordered Microsoft to separate IE from Windows 95 in their offerings to PC manufacturers who include Windows 95 on their systems.

Microsoft's response to the judge was so offensive that it took even ardent Microsoft supporters by surprise. Microsoft offered two alternatives: a horribly outdated version of Windows 95, and one that didn't boot up. Microsoft said they had no other alternatives because you can't uninstall IE without breaking Windows 95. When the judge showed them that he could do so easily, using commands in Windows 95, Microsoft walked off in a huff and indicated that he didn't understand.

How bad was it? The judge, when faced with Microsoft's absurd response to his simple demand, asked a Microsoft VP, "It seemed absolutely clear to you that I entered an order that required that you distribute a product that would not work. That's what you're telling me?" The VP replied, "In plain English, yes." The tone of the exchange, and of much of Microsoft's interactions with its customers, is "If you don't believe what we believe, you are clearly wrong."

Just before the judge was supposed to make a final ruling on the contempt charge, Microsoft made an agreement with the Justice Department that it would in fact do what was requested, which was to allow PC makers to remove parts of IE from the computers they shipped, and to remove the IE icon from the Windows 95 desktop. This action only avoids the contempt charge, not the whole antitrust action.

PC makers are not out dancing in the streets, however. Many of them already had to sign long-term contracts with Microsoft that compel them to keep shipping IE 4 on the desktop. Netscape's announcement that it has started giving away Communicator for free and is encouraging PC makers to put it on the desktop of their computers, forces PC makers to think twice about which Web browser they want to emphasize in Windows 95. And, of course, Microsoft will be watching what PC makers do now, and that will probably have an effect on the prices that will be offered for future Microsoft products.

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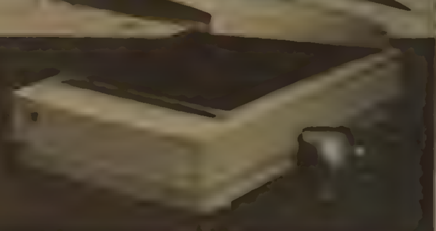

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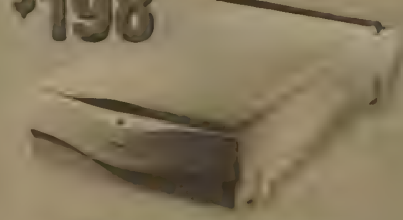

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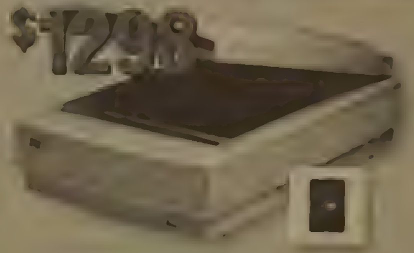

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Locking Customers Out Of Directories

If the IE debacle was the only example of Microsoft's arrogance towards its customers, it could probably be chalked up to temporary insanity or over-exuberance in the new Internet market (these two are often indistinguishable). However, at the same time Microsoft was making a minor concession in the antitrust case, it started out on a new frontier of telling its users that they could not use the products of another manufacturer, in this case Novell.

A bit of background: Microsoft is not going to deliver its long-awaited solution for full-featured corporate directories until Windows NT 5.0 comes out much later this year. Novell released its directory services software, NDS, for NT servers in January. Many current customers of Novell were eager for NDS running on NT because it gave them stable, robust directories running on NT.

Microsoft has a long-running battle with Novell for networking customers and decided to make a policy that would directly hurt its customers: it would not support any NT system that was running NDS. The Microsoft Web site said: "NDS for NT makes significant changes to the operating system. As a result, Microsoft today announced that it can not support Windows NT Server running Novell's NDS for NT."

Because of Novell's high standing in the PC market, this got a great deal of publicity in the computer trade press, coincidentally at the same time as Microsoft was posturing in the antitrust trial. Later that week, Microsoft backed down a bit from its anti-NDS stance.

In doing so, Microsoft was less than fully honest about the situation. It removed its previous page saying that NDS would hurt NT, and replaced it with one that said, among other things:

"Recently, there have been a lot of questions regarding Microsoft's support for its Windows NT Server customers who deploy NDS for NT from Novell. Microsoft is committed to providing support for our customers. Any customer that uses NDS for NT can expect full support for Windows NT Server code from Microsoft."

Microsoft didn't say anything about the earlier refusal to support NDS, and certainly didn't apologize for its earlier stance or the technical mistakes it had made in the earlier missive.

Loss Of Branding

Like most manufacturing companies, one of Microsoft's biggest assets is its brand name. Having that brand name associated with bullies and monopolists will certainly diminish the value of the brand, but over a long period. The cigarette companies have faced the same problem: how do you get more customers when people view you as dishonest and antagonistic to your government?

Much of Microsoft's success is based on ubiquitous branding. Microsoft doesn't make

continued on page 26

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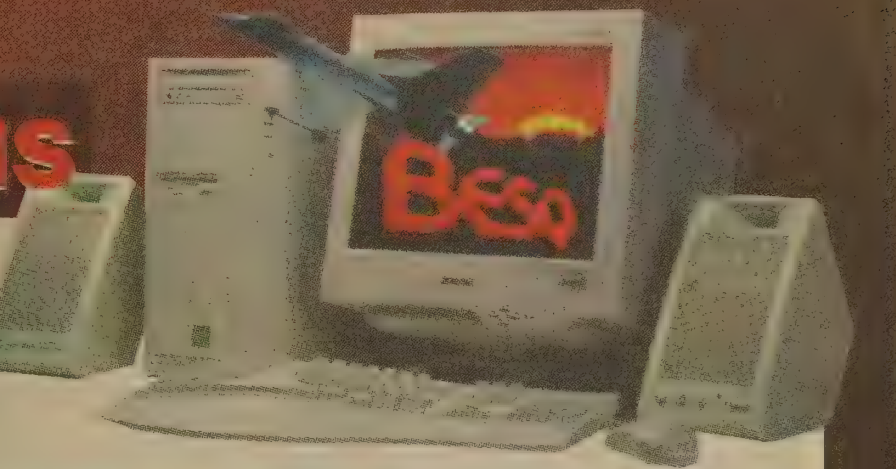

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Industry Insights

continued from page 23

any money off of Internet Explorer: it's free software. What they do make from it is a good feeling from some of their customers. This is a combination of being thankful that IE is free (since Netscape used to charge for their software) or happy that it has so many great features (if you aren't aware that Netscape has most of the same features). Now, the brand of Internet Explorer is associated with strong-arm tactics.

Netscape, Microsoft's main competitor in the Web market, is quite familiar with the value of branding. Over the years, Netscape's name has been tightly associated with Web browsers, and its browser is still more heavily used than Microsoft's. However, with its market share slipping, Netscape decided that it should just give away its browser and forgo the revenue it got from browser sales. In return, Netscape expects that it will gain more market share, and thus higher value to the Netscape brand.

Outside the US, there is a love-hate relationship with large American companies like Microsoft. While some people marvel at how rich the owners of these companies can get, others revile the companies when they act arrogantly. Much of Microsoft's revenues come from international sales, and Microsoft is more vulnerable to negative public opinion around the world than at home. The antitrust case, which could have easily been settled by Microsoft before it began, has gotten world-wide interest and has helped people in other countries see the darker side of Microsoft.

Down The Road

Although Microsoft seems invincible currently, many other now-defunct monopolies have as well. It's one thing to own a whole market, and another to act as if your customers don't count.

Remember, it was the PC makers, who brought Microsoft a large part of its income, who initially complained about Microsoft's refusal to let them take IE off the desktop and add Netscape's browser instead. Microsoft's insistence, based on a desire for more exposure for IE, resulted in their being sued by the federal government—and then insulting the judge in the case.

This is not the kind of thing a mature company should be doing to its customers. Although the prospects of competitors to Windows 95 are not great this year, Microsoft's actions have helped cultivate a desire for computer makers to not have to bundle Microsoft products with every system they sell. To be sure, they will do so as long as their customers demand it, but you can be sure that more of them will be looking for non-Microsoft alternatives in the next few years unless Microsoft makes a clear and sustained change in attitude—something that few people expect.

However, it is not impossible for Microsoft to make the needed change. It has started to turn around a bit, and it can certainly make a complete change and become more civil.

This isn't to say that they shouldn't compete like hell in the marketplace, but that they could do so in a way that in fact helps their customers instead of harming them. Further, they might even choose to become role models for people in their relationships with the judicial system instead of trying to look like hostile thugs. ■

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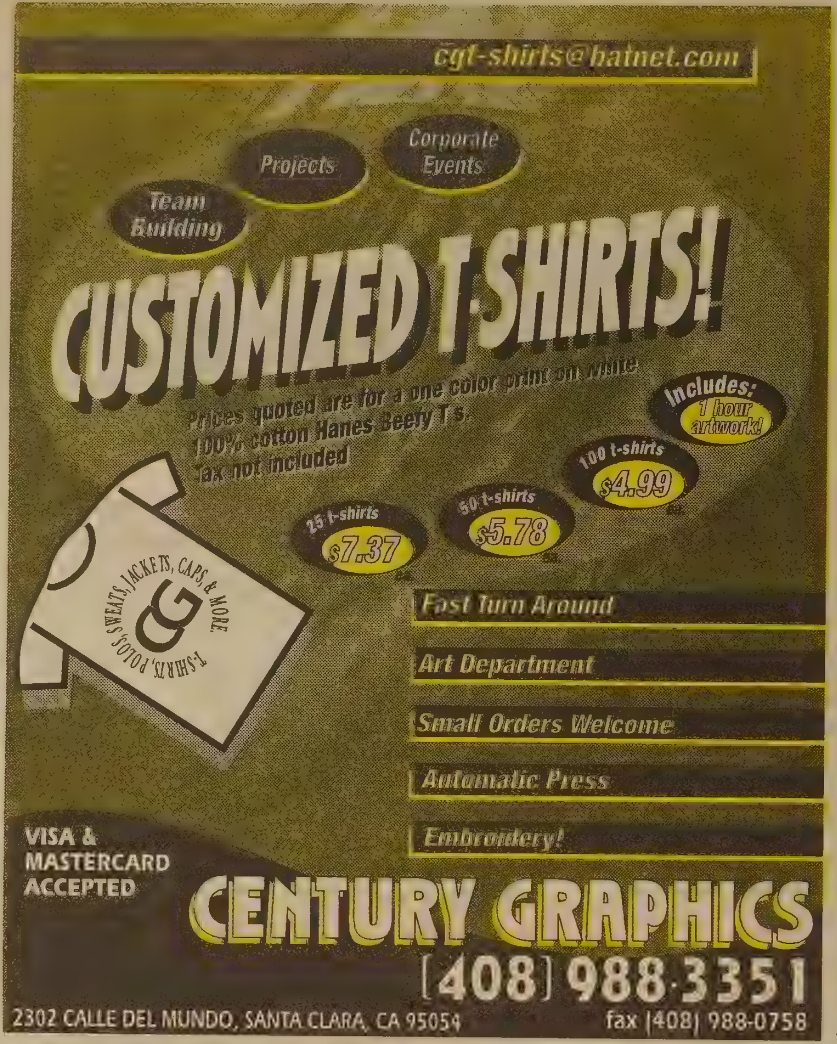
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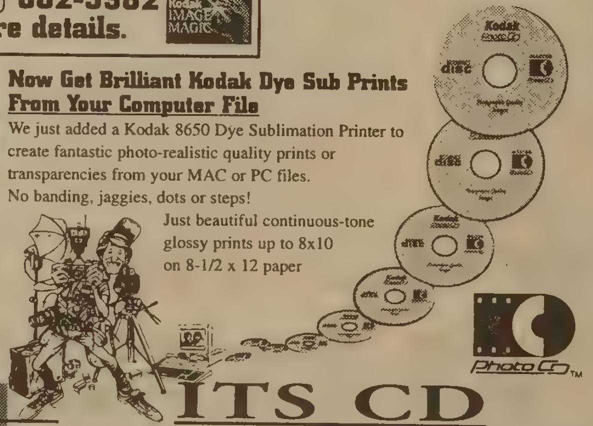
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Industry Insights *continued...*

MICROTIMES STOCK INDEX JETS HIGHER

EXCH	COMPANY	TICKER SYMBOL	CLOSING PRICE 01/14/98	CLOSING PRICE 02/05/98	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD	P/E RATIO	ANNUAL IVIDEN RATE	ANNUAL DIVIDEND YIELD	ANNUAL HIGH	ANNUAL LOW
	SOFTWARE										
NAS	Adobe	ADBE	38.88	39.44	0.56	1.45	16	0.20	0.51	53.13	32.50
NAS	Autodesk	ADSK	37.38	39 50	2.13	5.69	-	0.20	0.51	51.13	28.25
NAS	Borland	BORL	6.94	8.75	1.81	26.13	-	0.00	0.00	12.19	5.88
NAS	Broderbund	BROD	22.00	21.06	-0.94	-4.26	-	0.00	0.00	37.75	17.75
NAS	Informix	IFMX	5.31	6.38	1.06	20.00	-	0.00	0.00	21.56	4.00
NAS	Macromedia	MACR	9.63	9.16	-0.47	-4.87	-	0.00	0.00	14.34	6.50
NAS	Microsoft (H)	MSFT	131.13	155.44	24.31	18.54	53	0.00	0.00	158.00	87.50
NAS	Novell	NOVL	7.38	7.59	0.22	2.97	-	0.00	0.00	13.00	6.28
NAS	Oracle	ORCL	19.56	23.88	4.31	22.04	34	0.00	0.00	42.13	17.75
NAS	Symantec	SYMC	23.44	24.38	0.94	4.00	21	0.00	0.00	27.75	12.00
	HARDWARE										
NAS	Apple	AAPL	19.75	18.31	-1.44	-7.28	-	0.00	0.00	29.56	12.75
NYS	Compaq	CPQ	29.13	35.06	5.94	20.39	29	0.10	0.29	39.75	14.25
NYS	Digital Equipment (H)	DEC	37.50	60.63	23.13	61.67	39	0.00	0.00	60.69	25.00
NAS	Dell (H)	DELL	91.38	107.00	15.63	17.10	46	0.00	0.00	108.25	30.00
NYS	Gateway 2000	GTW	33.81	39.69	5.88	17.38	57	0.00	0.00	46.25	19.38
NYS	Hewlett-Packard	HWP	63.00	61.69	-1.31	-2.08	21	0.60	0.97	72.94	48.13
NYS	IBM	IBM	102.63	99.56	-3.06	-2.98	17	0.80	0.80	113.50	63.63
NYS	Silicon Graphics	SGI	11.44	14.69	3.25	28.42	92	0.00	0.00	30.31	10.94
NAS	Sun Microsystems	SUNW	42.31	49.88	7.56	17.87	27	0.00	0.00	53.31	25.88
NYS	Tandy	TAN	34.13	41.19	7.06	20.70	-	0.40	0.97	46.00	22.50
NYS	Xerox	XRX	70.88	86.25	15.38	21.69	21	1.40	1.62	88.00	54.75
	CPU'S										
NYS	Advanced Micro Devices	AMD	18.44	19.06	0.63	3.39	-	0.00	0.00	48.50	2.69
NYS	Cypress Semiconductor	CY	9.06	9.94	0.88	9.66	47	0.00	0.00	18.94	7.38
NAS	Intel	INTC	75.44	86.50	11.06	14.66	22	0.10	0.12	102.00	62.88
NYS	LSI Logic	LSI	21.88	25.13	3.25	14.86	22	0.00	0.00	46.88	18.63
NYS	Motorola	MOT	56.94	64.25	7.31	12.84	33	0.50	0.78	90.50	53.75
	COMMUNICATIONS										
NAS	3Com	COMS	32.69	32.69	0.00	0.00	37	0.00	0.00	60.63	24.00
NYS	AT&T (H)	T	65.63	63.63	-2.00	-3.05	22	1.30	2.04	66.50	30.75
NYS	BellSouth Corp. (H)	BLS	58.38	57.31	-1.06	-1.82	17	1.40	2.44	62.56	39.38
NAS	Cisco (H)	CSCO	57.00	64.38	7.38	12.94	55	0.00	0.00	65.75	30.19
NAS	MCI (H)	MCIC	43.81	47.19	3.38	7.70	-	0.10	0.21	47.50	27.31
NYS	Northern Telecom	NT	44.50	46.81	2.31	5.20	30	0.30	0.64	56.94	31.06
	INTERNET										
NAS	Earth Link (H)	ELNK	28.50	31.75	3.25	11.40	-	0.00	0.00	37.50	8.63
NAS	Netscape (L)	NSCP	17.81	21.94	4.13	23.16	-	0.00	0.00	49.50	14.88
NAS	Yahoo	YHOO	67.00	62.25	-4.75	-7.09	-	0.00	0.00	71.00	14.69
note: Netcom merged with ICG											
	MEDIA										
NYS	Disney (H)	DIS	96.50	108.31	11.81	12.24	38	0.60	0.55	109.25	70.38
NAS	TCI (H)	TCOMA	29.13	27.00	-2.13	-7.30	-	0.00	0.00	30.81	10.75

KEY: NYS = NEW YORK ASE = AMERICAN NAS = NASDAQ
(H) = NEW HIGH REACHED IN PERIOD (L) = NEW LOW REACHED IN PERIOD

MARKET DIARY:

ADVANCES	27
DECLINES	9
UNCHANGED	1
NEW HIGHS	10
NEW LOWS	1

MOST ACTIVE ISSUES:

LARGEST DOLLAR GAINER	Microsoft	$ 24.31
LARGEST DOLLAR LOSER	Yahoo	$ -4.75
LARGEST PERCENTAGE GAINER	Digital Equipment	61.67 %
LARGEST PERCENTAGE LOSER	TCI	-7.30 %

	CLOSE 01/14/98	CLOSE 02/05/98	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD
MICROTIMES STOCK INDEX	10813.50	11808.05	994.56	9.20
DOW JONES INDUSTRIAL AVERAGE	7784.69	8117.25	332.56	4.27
STANDARD & POOR'S 500 INDEX	957.94	1003.53	45.59	4.76
N.Y.S.E. COMPOSITE	501.35	522.97	21.62	4.31
NASDAQ COMPOSITE	1548.76	1676.90	128.14	8.27

CLOSING QUOTES FOR GRAPH:

DATE	MICRO TIMES	DOW JONES
07/03/97	9842.13	7895.81
07/31/97	11003.29	8222.61
08/28/97	10650.13	7694.43
09/25/97	11081.52	7848.01
10/16/97	10985.85	7938.88
12/10/97	10922.72	7978.79
01/14/98	10813.50	7784.69
02/05/98	11808.05	8117.25

Source: Nordby International Inc. (*http://www.nordby.com*), Boulder, CO.
This information is based on sources believed to be reliable, and while extensive efforts are made to assure its accuracy, no guarantees can be made. Nordby International assumes no liability for any inaccuracies. For information on Nordby's customized financial research services, call (303)938-1877.

The national indices turned in strong results last month after Federal Reserve Chairman Alan Greenspan commented that inflation was still tame. "Right now, it looks like the market is saying Asia is going to have an impact, but it's not a disaster. Interest rates are good, and what's going on in the White House is not too terrible, at least so far," said Arun Kumar, senior U.S. equities strategist at Lehman Brothers.

The Dow Jones Industrial Average was spurred on by Greenspan's comments, as it soared 332.56 points, or 4.27%, to close the month ending February 3 at 8117.25. The S&P eclipsed the 1000 level for the first time in its history, as it closed at 1003.53, up 4.76% for the month.

The *MicroTimes* Stock Index moved sharply higher on the strong performances of companies such as Digital Equipment and Dell. Our index jumped 9.20% higher, or 332.56 points, to close the monthly trading period at 11808.05. In our index, advancers outpaced decliners by a 27-to-9 count, and ten companies reached annual highs versus only one that fell to a 52-week low.

Turning To Stocks In The Accompanying Table

The merger of Compaq Computer Corp. and Digital Equipment Corp. is likely to increase the competitive pressures at home and abroad. The deal creates a $38 billion giant company with leading positions in Europe in key markets like personal computers, Windows NT servers and services; its gains may come at the expense of local companies, analysts said. "I don't think this makes life easier for them," said Andreas Wahl, of Credit Lyonnais. Last month both Compaq and Digital Equipment watched their stock price move higher. Shares of Compaq rose 20.39%, or $5.94 per share, to close at $35.06. Shares of Digital skyrocketed 61.67%, or $23.13 per share, to close at $60.63.

Dell Computer Corp. boss Michael Dell conceded last month that the merger of Compaq Computer Corp. and Digital Equipment Corp. would make life more challenging. But he told a news conference his rivals' move would do little diminish to his plans to hit the sector's number one slot soon. "My prediction was that if Dell continued to grow at its current rate, and its competitors continued to grow at their current rates, we would be number one by the year 2000," he said. Dell's stock price also moved higher last month, climbing to a new annual high of $107.00 per share, up 17.10%.

Netscape Communications stock resumed climbing from a recent 12-month low on continuing speculation that the Internet software company is in talks to sell all or part of itself. Shares of the company rose 23.16%, or $4.13 per share, to close at $21.94. Rumors continue that Netscape is in talks with America Online Inc., Sun Microsystems Inc., Oracle Corp., and International Business Machines Corp. ■

—Ryan Reichenbach
Production Manager
Nordby International, Inc.

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- *Deluxe Medium ATX Case W/235 UL P.S.*
- *MS Windows 95 CD*
- *Mitsumi 2 Button Mouse*
- *Windows 95 Keyboard*

AMD K6-166 . $1,048
AMD K6-200 . $1,099
AMD K6-233 . $1,127

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- *Toshiba 24X FAST IDE CD-ROM*
- *Built-in Yamaha OPL4 Wavetable Synthesizer*
- *Altec-Lansing Spk. w/Bass Sub-Woofer*
- *33.6 USRobotic Int. Data/Voice/Modem*
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- *Deluxe Medium ATX Case W/235 UL P.S.*
- *MS Windows 95 CD*
- *MS Ergonomic Mouse*
- *Windows 95 Keyboard*
- *Grolier Encyclopedia '97*

166MHz MMX . . $1,633
200MHz MMX . . $1,723
233MHz MMX . . $1,795

Multimedia-PC (Pack 3)

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- *64 MB EDO 10ns SDRAM 168pin*
- *6.4GB Ultra DMA HD Western Digital*
- *Matrox Millennium II /8MB WRAM PCI*
- *Viewsonic 17PS 17" 1600x1280 .25 Monitor*
- *Toshiba 32X FAST IDE CD-ROM*
- *Sound Blaster AWE 64 Wavetable*
- *Altec-Lansing Spk. w/Bass Sub-Woofer*
- *56K USRobotic Int. Data/Voice/Modem*
- *1.44 Teac Floppy*
- *Deluxe Medium ATX Case W/235 UL P.S.*
- *MS Windows 95 CD*
- *MS Ergonomic Mouse*
- *Windows 95 Keyboard*
- *Grolier Encyclopedia '97*

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200MHz MMX . . $2,115
233MHz MMX . . $2,189

Intel Pentium® II System (Pack 4)

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- *64 MB EDO 10ns SDRAM 168pin*
- *6.4GB Ultra DMA Hard Drive IBM*
- *Matrox Millennium II /8MB WRAM AGP*
- *Sony 200SF 17" 1280x1024 .25 Monitor*
- *Toshiba 32X Fast IDE CD-ROM*
- *Built-in Yamaha OPL4 Wavetable Synthesizer*
- *Altec-Lansing Spk. w/Bass Sub-Woofer*
- *56K USRobotic Int. Data/Voice/Modem*
- *1.44 Teac Floppy*
- *Deluxe Medium ATX Case W/235 UL P.S.*
- *MS Windows 95 CD*
- *MS Ergonomic Mouse*
- *Windows 95 Keyboard*

233MHz 2,169
266MHz 2,258
300MHz 2,415
333MHz 2,619

Intel Pentium® II-SCSI (Pack 5)

- *Intel AL440LX Pentium II w/ 2 USB*
- *512K Pipeline Burst Cache, Flash Bios*
- *64 MB EDO 10ns SDRAM 168pin*
- *4.3GB UW SCSI Hard Drive IBM*
- *Adaptec 2940UW SCSI-2 PCI*
- *Matrox Millennium II /8MB WRAM AGP*
- *Sony 200SF 1280x1024 .25 Monitor*
- *Toshiba 32X Fast SCSI CD-ROM*
- *Sound Blaster AWE 64 Wavetable*
- *Altec-Lansing Spk. w/Bass Sub-Woofer*
- *56K USRobotic Int. Data/Voice/Modem*
- *1.44 Teac Floppy*
- *Deluxe Medium ATX Case W/235 UL P.S.*
- *MS Windows 95 CD*
- *MS Ergonomic Mouse*
- *Windows 95 Keyboard*

233MHz 2,619
266MHz 2,709
300MHz 2,859
333MHz 3,069

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Intel P5-200 MHz	$ 155
Intel P5-166 / 200 MHz MMX	$ 115 / 165
Intel 233 Mhz MMX	$ 279
Pentium II 233 MMX MHz	$ 269
Pentium II 266 MMX MHz	$ 399
Pentium II 300 MMX MHz	$ 599
Pentium II 333 MMX MHz	$ 815
AMD K6 MMX-166 / 200 MHz	$ 119 / 158
AMD K6 MMX 233 MHz	$ 178

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Intel Anchorage, Intel 430TX w/Sound, 512K	$ 159
Intel Lonetree, Intel 430TX 512K USB, Ult. DMA	$ 155
ASUS P2L97 P-II Intel 440LX, AGP	$ 165
ASUS P2L97S P-II Intel 440LX, AGP w/SCSI	$ 237
ASUS P2L97DS Dual P-II Intel 440LX, AGP w/SCSI	$ 365
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4.3GB Quantum Ultra DMA	$ 225
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6.4GB Seagate Medalist Pro, Ultra DMA	$ 285
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CD-ROM-MULTIMEDIA

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Toshiba XM- 6102 24X IDE	$ 72
Toshiba XM- 32X IDE	$ 95
Teac -524 24X IDE	$ 73
Panasonic 585 24X IDE	$ 70
Sound Blaster 16 IDE PnP	$ 43
Sound Blaster AWE 64 - PnP Value (Bulk)	$ 73
Sound Blaster AWE 64 - Gold PnP	$ 169
Monster Sound by Diamond	$ 139
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Altec Lansing ACS45 with subwoofer	$ 75
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Yamaha CD-WRITER (R-6x, W-4x)	$ 415
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US Robotics Video w/camera	$ 189
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Stylus Color 800 Ink Jet 1440x720	$ 349
Stylus Photo Ink Jet	$ 359
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Sony 17" 200GS .25 1280x1024	$ 625
Sony 17" 200SF .25 1280x1024	$ 585
Sony 15" 100GS .25 1280x1024	$ 345
ViewSonic E655 15" .28 1024x768	$ 245
ViewSonic 15GS .27 1280x1024	$ 285
ViewSonic G771 .27 1280x1024	$ 415
ViewSonic G790 .26 1600x1280	$ 729
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BY DAVID KLINE

Memo To Bill

A Few Words Of Friendly Advice

Dear Bill,

It must be galling to have the Feds win that temporary injunction barring Microsoft from bundling the Internet Explorer browser with your Windows operating system. After all, it's been you more than anyone who has helped build a high-tech industry for America that is the envy of the world.

But get over it, Bill! What's done is done, and unless you're willing to compromise here, you could end up jeopardizing much of what you've built over the last 22 years.

I understand your frustration, of course. The Department of Justice may claim that Internet Explorer is separate and different from your Windows operating system and can't be bundled together without violating anti-trust laws. But, hey, these are the same guys who can't even tell the difference between legitimate fundraising and videotaped influence peddling at the White House!

What's more, I'd bet that even many of your competitors would agree that Internet browsing is an inevitable enhancement to a PC-operating system. After all, since the dawn of personal computing 20 years ago, operating systems have continually evolved and gained new features and capabilities.

Can anyone imagine buying a computer today, either one of your Windows machines or an Apple Macintosh, without the built-in memory management, disk-drive maintenance, printer support or diagnostic capabilities that once were sold only as third-party add-ons? Or does anyone believe for a moment that your competitors, especially Sun Microsystems and Netscape Communications, don't also incorporate new features into their software that once were sold only by third-parties and rivals?

Of course not. But face it, Bill. In today's anti-Microsoft climate, that fact and $50 million will barely buy you a 40,000-square-foot house, right?

So it's time to look at the big picture and recognize that what you're facing in the DOJ suit is not some legal hair-splitting over what constitutes an operating system, but a political problem arising from the growing public perception of Microsoft's arrogance and abuse of power. Unless you deal with that, you could wind up witnessing the government breakup of Microsoft.

I know you don't want that. After all, the little company you started long ago is today the unchallenged king of personal computing. Plus, you also happen to be the richest human being on the planet. (Just between us, Bill, you're so rich that if you saw a $1,000 bill on the street it wouldn't be worth your time to take half a second to pick it up because you earn $2,800 per second. Which also means, of course, that you can pay off Attorney General Janet Reno's $1 million per day fine in slightly less than six minutes!) Not bad for a college dropout, eh, Bill?

Consider what's at stake: Do you want to risk Microsoft's core business over 55 obscure little words? Do you (or any of us, for that matter) want to see the federal government decide what, exactly, constitutes a computer operating system, an Internet application or any other technological issue that it knows exactly zero about?

I don't think so. So here's what you should do:

- Cut a deal with the DOJ wherein it agrees that Internet Explorer is an "optional" component of the Windows operating system, and you agree that computer vendors and resellers may, if they or their customers wish, delete it from the desktop screens and use Netscape's Internet browser instead.
- Stop your muscleman, VP Steve Ballmer, from leaning on vendors (such as Compaq Computer and Gateway 2000) that want to sell some Windows PCs with your browser and some without. This is America, remember?
- In fact, lighten up on the hardball tactics, period.
- Sure, being tough in business is as American as Horatio Alger, and people admired that when you were the David battling IBM's Goliath. But now you're the Goliath, and most folks expect you to show a more magnanimous and statesman-like approach toward your competitors, who have public sympathy on their side because they are the underdogs.
- Finally, it's time for you to give more back to the country that provided the freedom and opportunity that made your enormous success possible. How about a few billion bucks for a national skills-retraining program that could help the millions of hard-working Americans affected by downsizing (thanks partially to your software) prepare for 21st century jobs? C'mon, you'll hardly miss it.

In short, Bill, it's time to take off the brass knuckles and "go legit," to paraphrase Don Corleone of Godfather fame. You've already conquered the high-tech world. Now, with a little more wisdom and humility, you could actually lead it as well. ■

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It's time to look at the big picture and recognize that what you're facing in the DOJ suit is not some legal hair-splitting over what constitutes an operating system, but a political problem arising from the growing public perception of Microsoft's arrogance and abuse of power.

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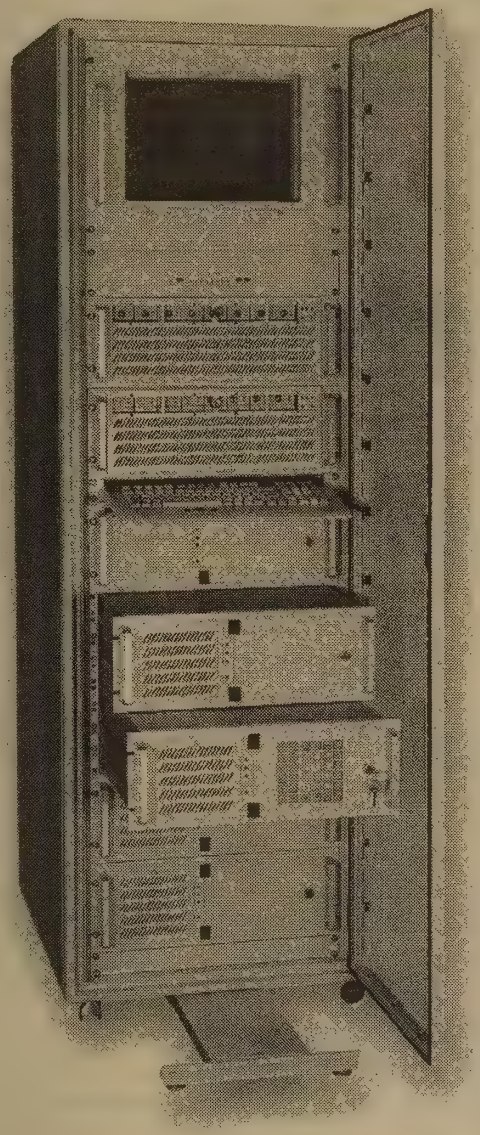

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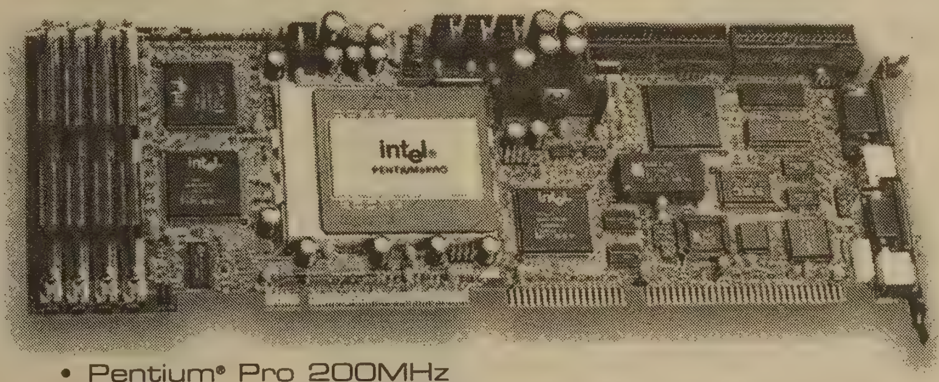

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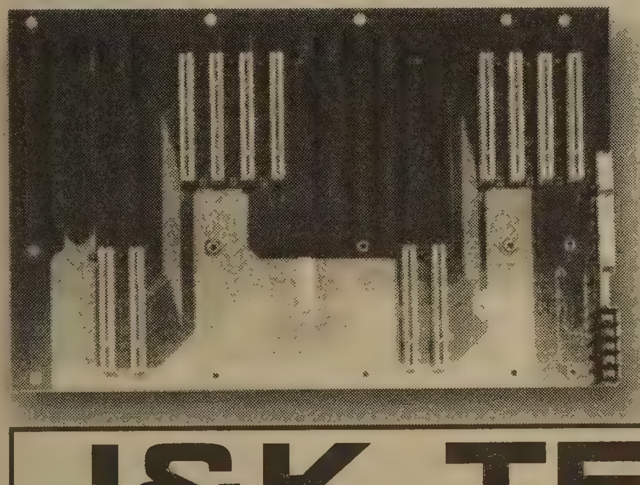

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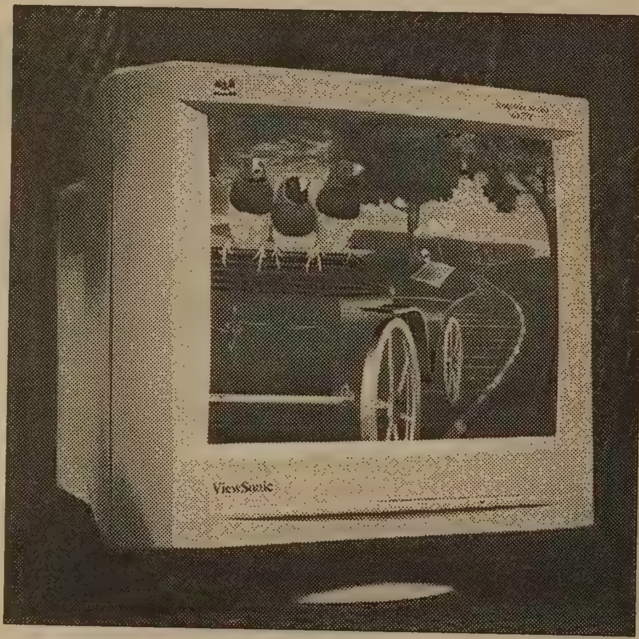
For the past couple of years, I have been very satisfied using a 15" monitor with my laptop in my primary work area. However, as the prices have dropped, many people are switching to 17" models. Not too long ago, a monitor this large was simply too expensive for many users. But now, you can find some of these same brands for as little as $400. I shy away from the least expensive models in monitors. While this makes my initial investment a little higher, I know that the monitor typically lasts for considerably longer than the computer itself. It is not that the computers wear out, but rather that they become "outdated" as new software and hardware pushes them towards obsolescence every couple of years.

Nearly ten years ago, for instance, I bought a top of the line Sony monitor. I changed only a couple years ago because I wanted to get higher resolution and a larger screen. My friend still uses the old display.

What prompted me to upgrade again was also the desire for a larger screen. And, indeed, I do love the added size. Not only is it easier for me to see what I am doing, but it is also easier for someone to view when they are looking over my shoulder. Before, it was nearly impossible for both people to see the display unless they were fairly close to the screen. Now, work is easy and more comfortable to see from a greater distance.

For almost any reason, if you are buying a monitor I suggest that you give serious consideration to getting a 17" model. While there are a number of good brands on the market, I like the ViewSonic G773—it has the features I want at an affordable price.



In addition to energy conservation, the G773 meets the highest standards for low radiation, safety, ergonomics, and recycling.

The screen itself is clear, due in part to the .26mm dot pitch. The smaller the dot pitch number, the finer the image. Many of the less expensive monitors feature a .28mm dot pitch. While they give clear displays, it is worth the extra money to get the finer definition—especially if you work with graphics. The G773 handles resolutions all the way up to 1280 x 1024. For most of the work I do, this is unnecessary, but it lets me see icons large enough on the desktop and a beautifully clear text on the screen. Glare is reduced by the screen treatment applied at the factory.

There are a number of additional things to like about this monitor besides the image itself. First, it is easy to adjust. There are five buttons on the front of the monitor. One, set apart from the others, is the power switch. The other four buttons let you adjust horizontal size and positioning, vertical size and positioning, trapezoid/tilt, and a number of other settings. Once you have adjusted the monitor, you probably will not have to touch the controls again until you change your settings in Windows 95 or connect the monitor to a different computer.

New monitors, including the ViewSonic G773, typically comply with the EPA Star Energy standards for energy efficiency. This monitor automatically implements two energy saving stages. The first reduces energy consumption from 110W to 15W. In this mode, the monitor display turns

continued on page 36

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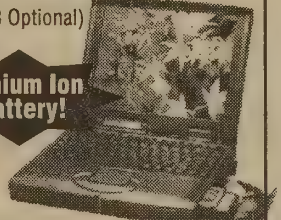

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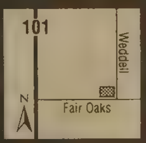

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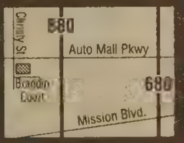

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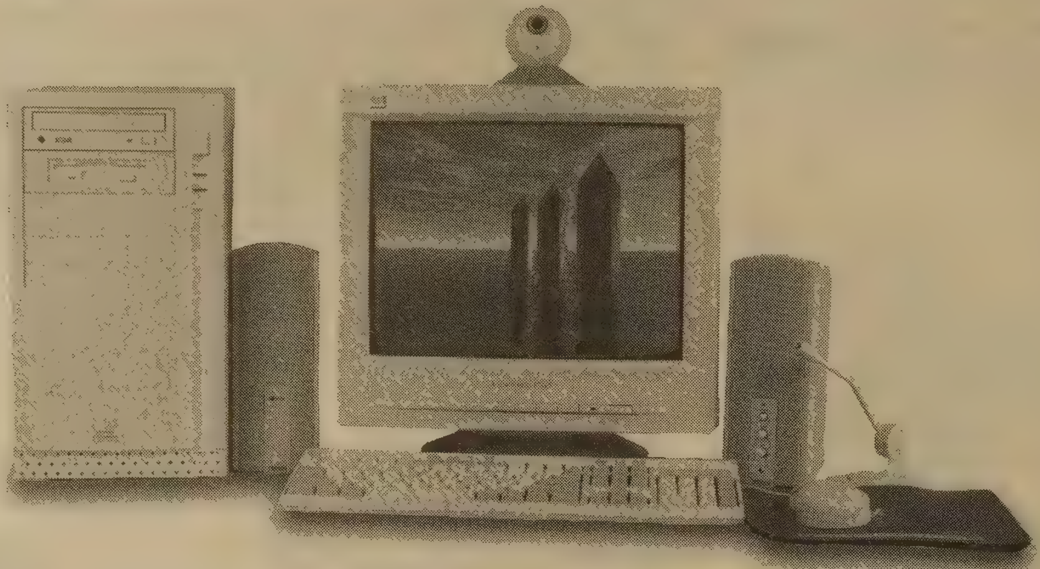

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- 16MB EDO RAM (Exp. to 144MB)
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- 16 Bit Sound/Speakers

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- 12X CD-ROM
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- Desktop Case
- MS Windows 95

(Monitor Not Included)

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(Monitor Not Included)

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- MS Windows 95

(Monitor Not Included)

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(Monitor not included)

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Laptops *continued from page 32*

off, but springs back to life when you hit a key or touch the mouse. It takes only a few seconds to recover. In the next stage of power conservation, the wattage goes down to eight and the power light turns orange. Recovery from this mode takes nearly as long as when you turn the monitor on from scratch.

In addition to energy conservation, the G773 meets the highest standards for low radiation, safety, ergonomics, and recycling. As we learn more and more about the environmental problems created by old, discarded computers, I have become increasingly concerned that computer components can be recycled.

Connecting the monitor was as simple as unplugging my old one and putting this one in its place. To formally install the monitor, however, you have to tell Windows 95 to look for a different monitor. Because this is a new model, Windows 95 did not have this monitor on its list of choices. The monitor includes a disk that was supposed to contain the new driver. Unfortunately, the disk did not contain the right files and I had to phone ViewSonic's tech support. They corrected the situation by sending me the file by email. They also assured me that future shipments would include an updated disk. Truthfully, I did not notice a significant difference in the display with the correct driver, but it is always better to have the right software.

ViewSonic provides a three-year warranty. I am delighted with this new, larger monitor. While I reviewed the ViewSonic G773 on a Windows system, it can also work with Power Macs.

continued on page 40

As we learn more and more about the environmental problems created by old, discarded computers, I have become increasingly concerned that computer components can be recycled.

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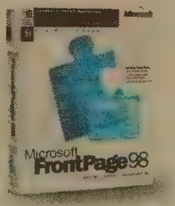

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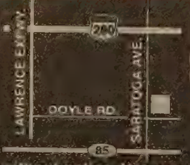

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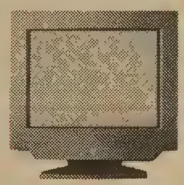

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Laptops *continued from page 36*

Computer Of The Month

Commax SmartBook I-1100

The smaller display size is one of the major limitations of portable computers. While the quality of these displays have greatly improved over the years, and are fine when you are on-the-go, they leave something to be desired if you are working on them for an extended time.

The latest laptop from Commax Technologies, the SmartBook I-1100, offers a 14.1" display. This rivals the largest on the market. While this is still smaller than what I would recommend for a CRT display, it is not that much smaller than what many people still have on their desk. The LCD on the SmartBook is crisp and clear, making it good enough to work on for hours with no eye strain. Even though you can always attach an external monitor, the built-in LCD is XVGA and supports up to 1024 x 768 resolution.

The display, however, is just one of the many appealing features of this system. It is fast and powerful. While the computer I tested came with a Pentium running at 233MHz with MMX, Commax makes a variety of configurations of this basic model. The more exciting systems come with the Intel Tillamook Pentium processor, which runs longer and generates less heat because of the low power consumption of the CPU. It is not more expensive than the system I tested, but was in short supply when Commax put my system together. Like so many of the manufacturers, Commax builds its computers as they are needed.

The SmartBook I-1100 is a little larger than a laptop with a smaller display, but is still easy to transport. Its overall measurements are 12.4" x 10.2" x 2.2" and weighs 8 lbs. It comes standard with 16MB of memory, but will accommodate up to 128MB of RAM. The system I tested came with 64MB. A choice of hard drives are available, but my system came with a 3GB hard drive—the largest they offer.

It ships with a removable floppy drive, making a number of options available. A second lithium-ion battery ($180) is available for the bay. The bay can also hold a Zip drive module ($235) or any of several other storage options. The SmartBook comes with a 20X CD-ROM drive and the company plans to introduce a DVD drive shortly.

The keyboard layout is pretty standard for a laptop this size. As you know, I prefer a good stand-alone keyboard when that is an option. I recently saw an acceptable keyboard advertised for under $10. With good keyboards so inexpensive, there is no reason to make any compromise in this area except when you are on-the-go. The pointing device on the SmartBook is a touchpad. I am not wild about this one, but it is acceptable.

There are two PC Card slots on the side of the computer, one of which supports Zoomed Video for smooth video display. I especially like that the slots will hold a Type III card as well as a Type II card at the same time. This means you can use a PC Card hard drive and a modem or network card at the same time. You can use an internal modem, but most users still prefer to use a PC Card modem because they are easier to install and upgrade.

The SmartBook I-1100 offers a 14.1" display. While this is still smaller than what I would recommend for a CRT display, it is not that much smaller than what many people still have on their desk.

The audio system is Sound Blaster-compatible and includes built-in microphone and speakers. If you desire, you can connect external speakers and a microphone. There is also a line-in jack.

There is one USB port. While these devices are not common yet, they will soon hit the market and Windows 98 will support these ports. We can look forward to modems, scanners, printers, mice and lots of other peripherals coming with USB plugs.

The SmartBook I-1100 comes with a good carrying case and is pre-loaded with Windows 95. It also comes with a one-year warranty for parts and labor. Commax also offers an extended warranty. ■

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RESOURCES:

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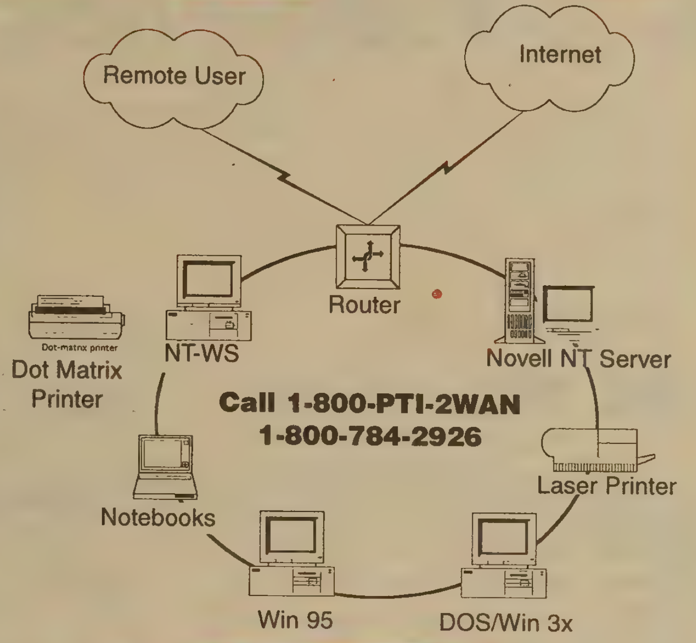

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PALMPILOT • BY DOUGLAS J. NAKAKIHARA

PalmPilot Connectivity

Mail, Web, And Fax Without Your PC

One of the PalmPilot Professional's most intriguing capabilities from my standpoint was remotely sending and receiving email. Unfortunately, the software that comes with the PalmPilot relies completely on your desktop email application to actually send and receive mail. Thus, you are still anchored to your PC.

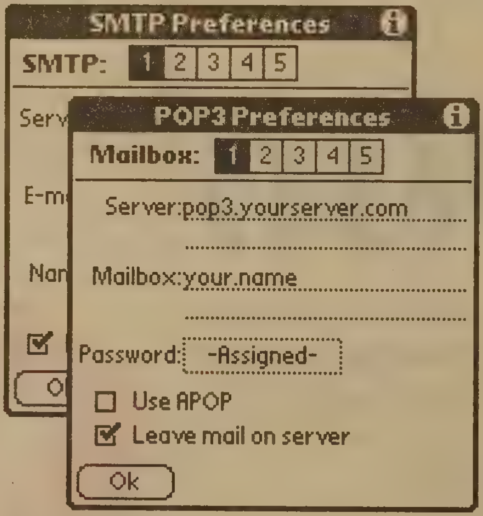
Fortunately, third-party applications, like Smartcode Software's HandStamp Pro, fill the gap and allow you to remotely handle your email. What's more, Smartcode also has Web browser and fax applications to free you from your desktop even more so.

Getting Started

First off, to use email you need a one-megabyte PalmPilot, either the Professional version or one with a memory upgrade. You'll also need the PalmPilot modem attachment or the serial cable to connect to an external PC modem. However, the modem attachment is really the only logical choice since the whole idea is to free yourself from your desktop.

The PalmPilot comes with its own networking software which you need to configure before you do anything else. It's really not any more difficult than setting up a normal PC email application.

First, you need to set your ISP user name, password, telephone number, connection type, DNS address, etc.—the same things you'd need to set for Internet Explorer or Netscape. (Note: Proprietary services such as MSN and AOL will not work.) In fact, you should be able to get the required information by looking at your Internet settings on your PC, assuming you already have things functioning properly there.



SMTP Preferences

SMTP: 1 2 3 4 5

Serv

E-m

Nar

☑

POP3 Preferences

Mailbox: 1 2 3 4 5

Server:pop3.yourserver.com

Mailbox:your.name

Password: -Assigned-

☐ Use APOP

☑ Leave mail on server

Ok

> *HandStamp's great to send a quick note off without going through the annoying task of booting up my entire system just to send a single message.*

You can access the PalmPilot's integrated network setting screen directly from HandStamp Pro, or you can take the long route through the standard Prefs application.

Once the network settings are completed, you need to specify your POP3 and SMTP servers. You may elect to leave the message files on the server, which I recommend you do. For example, I get a lot of large email with attachments where I might want to read the message only. Leaving those on the server allows me to go back later and get the attachments on my desktop PC. I also get a lot of HTML-formatted mail, which isn't supported by HandStamp Pro.

HandStamp Pro has the capacity to define up to five different configurations called "mailboxes," which is great if you use multiple mail servers. You may also enter signature text. This can be automatically applied to the end of all mail or you may manually specify whether or not the signature is added.

Filters

HandStamp Pro's Filters provide a way to handle email based on defined criteria. Surprisingly, this offers a pretty rich implementation. You can look for certain text in the sender, subject, to:, and cc: parts of a message, and specify whether the text is contained in the field, or begins or ends with it. You may also set up filters based on the size of the message.

Filters can be used to either filter out certain messages or route them to particular folders. HandStamp Pro features an Inbox, Outbox, Draft, and Sent folder, as well as eight user-definable folders to store and organize your messages. If you have multiple mailboxes set up, you may specify which one the filter applies to. You can also use this feature to individually toggle filters on and off without permanently deleting them. There is a global option to use or not use filters when you retrieve mail as well.

Since you can define multiple filters, you can also prioritize them if a message meets the criteria of more than one filter. This allows you to set which filter should have precedence over another.

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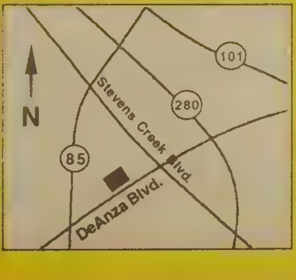

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Mail Handling

When you retrieve mail, HandStamp Pro will automatically dial up your ISP, log you on, and get your mail. In the interactive mode, only the headers of the messages are downloaded initially. Then, based on the sender, subject, and size, you can select which messages you want to download in their entirety.

The program supports unique message IDs. If not for this feature, the same message would be retrieved multiple times if it was left on the server. A feature that's missing in other PalmPilot email applications I've seen is the ability to individually delete messages from the server.

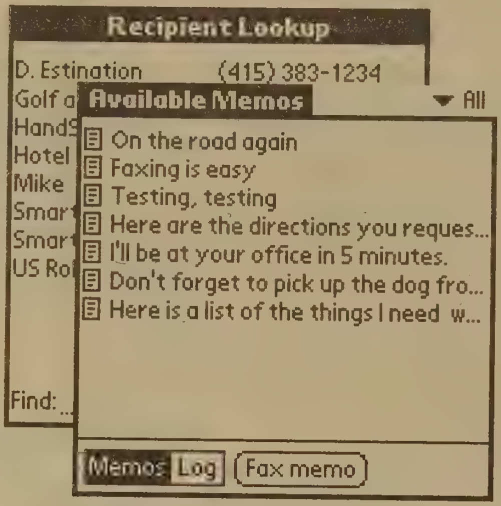
HandStamp Pro will handle messages up to 50K. Messages larger than this are simply truncated, although the program will let you know when this happens.

When preparing a message to be sent, you can either input the email addresses manually or look them up in the PalmPilot's integrated address book. This caused me to add email entries to my address database. It would be nice if there were some way to either support, say, Internet Explorer or Netscape address books, although I guess the PalmPilot's limited storage space might make this difficult.

When you are finished composing your message, you place it in the Outbox. All messages in the Outbox are automatically sent the next time you execute the Send All or Send & Receive command. If you want to save your message for editing at a later time, you can store it in the Draft folder.

Web Browsing

With only a four-color display, Web browsing on the PalmPilot might seem like a pretty silly idea. However, I found that not to be the case at all.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The PalmPilot coupled with Smartcode Software applications is really what true mobile computing is all about. Leave that bulky laptop at home and just pocket your PalmPilot and clip-on modem.

Even though HandWeb strips images and much of the formatting out of the Web site, you can still access valuable information. For example, I've used it to access weather information and movie schedules. HandWeb can also be used to download PalmPilot program (.PCB and .PDB) files.

HandWeb connects to the Internet using the PalmPilot's integrated network settings (same as HandStamp Pro) and proxy servers are supported. It supports HTML 2.0, HTTP basic authentication and automatic redirection. Support for forms is reportedly in the works.

Standard navigation controls, like forward, back, stop, and reload, are provided. Bookmarks are supported; you can organize them in categories. There is even a History category to track your browsing.

Web sites can be displayed using either user-defined titles or by their URL. I found the easiest way to enter the URLs was to first test it using my desktop PC. Then, transfer the URL to the PalmPilot via the notepad and performing a hotsync.

Once retrieved, you can save the Web page as a memo, although the (limited) formatting is lost. It would be nice if you could also save the page and use HandWeb for offline browsing. Also, with the increased use to HTML formatted email, a cool feature would be to allow you to read those messages using HandWeb, assuming you also had HandStamp Pro.

It should be obvious that frames-support is pretty much impossible considering the PalmPilot's display and memory constraints. However, you can still access information on a frame Web site, albeit individually frame by frame. You'll probably only be interested in one of the frames anyway, so you'll just need the URL of that frame. Essentially, each frame is a separate Web address. With Internet Explorer, for example, you can get the individual frame URL by right-clicking over the frame and selecting Properties.

Faxing

We've already got email and Web browsing. How about good old faxing?

Smartcode has that covered, too! With HandFax you can send a fax directly from your PalmPilot; it is completely compatible with Class 2 and Class 2.0 fax machines. Receiving faxes is (obviously) not supported, since the storage requirements would overwhelm the resources of a PalmPilot.

You can either write your own fax using HandFax, or you can send any memo stored on your PalmPilot. The later allows you to use a fax machine as a remote printer for printing out memos should the need arise. All faxes are also logged to a file.

Like HandStamp, which uses the PalmPilot's address book for email, HandFax can look up fax numbers entered there as well. It will even fill in the name and company fields automatically using the address book data.

Faxing options include user-definable Fax ID, resolution (normal or fine), header, and even a bitmap logo. The header places the Fax ID, date, time, and page number at the top of each page. The bitmap logo is an image that will print on the cover page. The cover page can also include sender information, such as name, company, fax number, voice number, and address.

Although the bitmap logo defaults to a

continued on page 203

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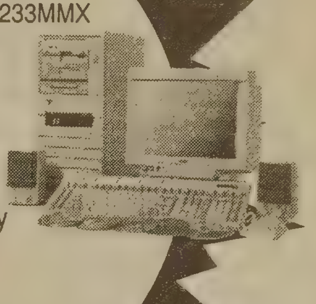

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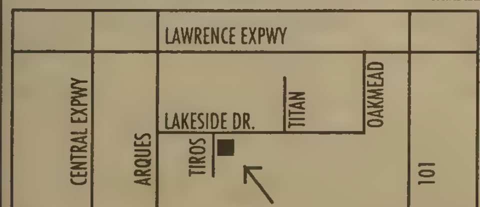

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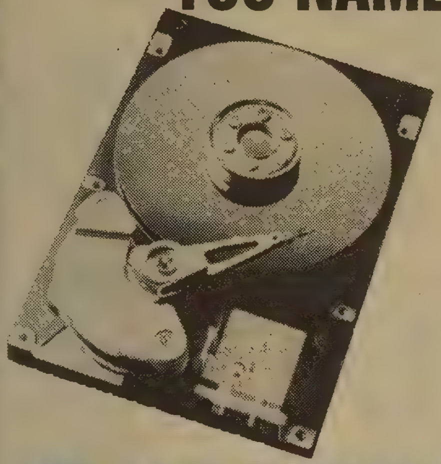

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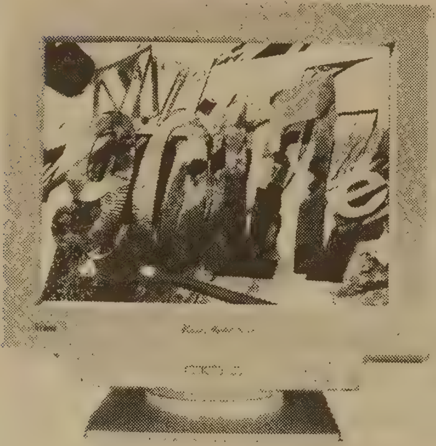

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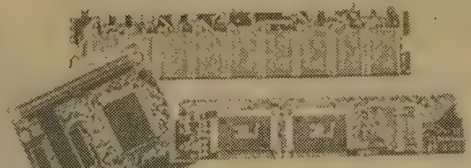

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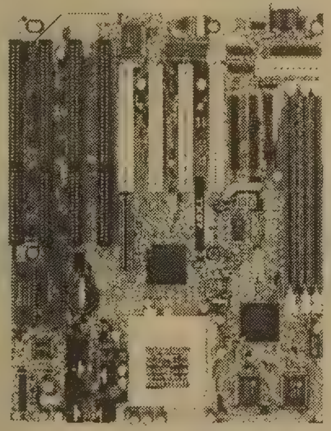
Atlanta Pentium II AGP	185



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HP Deskjet 890 CXi	429
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Epson Stylus 400	189
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Teac 24X IDE	$75
Toshiba 24X IDE	79
Teac 32X IDE	96
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US Robotics 33.6K (oem)	$79
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6) All returns must be in original packaging complete with manual, software,...etc.
7) 15% restocking charge on returns after three days.
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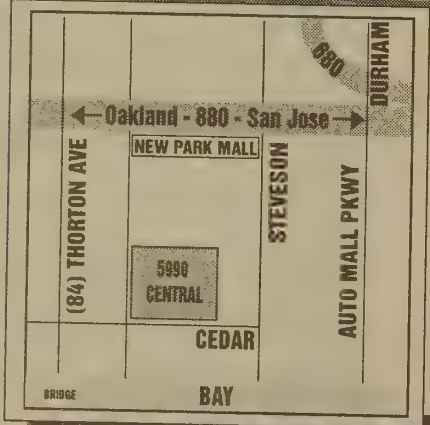

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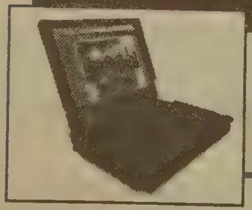

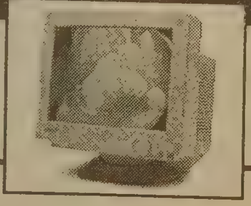

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Last Name
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Title
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Area Code Phone Number - -
Area Code Fax Number - -
E-Mail Address
E-mail address (continued)

Number of Employees
○ 1 to 10 ○ 50 to 100
○ 10 to 50 ○ Over 100

What Is Your Purchase Time Frame?
○ 1 Week ○ 3 Weeks
○ 2 Weeks ○ 4 Weeks

Please Rank Your Choice
H=High L=Low
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Ⓗ Ⓛ Reseller Ⓗ Ⓛ Warranty
Ⓗ Ⓛ Onsite Support
Ⓗ Ⓛ Compatibles
Ⓗ Ⓛ Brand Name

To Be Used Where ? ○ Business ○ Home ○ Network

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○ PC NAME BRAND ○ MACINTOSH
○ PC COMPATIBLE ○ Network WORKSTATION
○ PC NOTEBOOK ○ Network FILESERVER
○ MACINTOSH NOTEBOOK

PICK YOUR PREFERENCES
○ Name Brand
○ Compatibles
○ No Preference

Step 1: Enter PC System Brand Name & Model #. If Preference
Step 1: Enter NoteBook Brand Name & Model #. If Preference

Quantity / Choices
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ My Budget For System Is ○ Under $1000 ○ $1000 to $1999 ○ $2000 to $2999 ○ $3000 to $3999 ○ $4000 to $4999 ○ Over $5000
10 or More ○ Call Me For A More Detailed Quote. ○ Quote Me For Selected Upgrade/Peripherals Choices Only. ○

STEP TWO: SYSTEM CONFIGURATION: ○ INTEL ○ PENTIUM ○ PENTIUM MMX ○ PENTIUM PRO ○ PENTIUM II ○ DUAL CPU'S
○ MACINTOSH ○ MACPOWER BOOK ○ MacCLONE ○ AMD ○ CYRIX

CPU MHz & SPEED:
○ 5X86 ○ 6X86 ○ K-6 ○ Quadra ○ PowerPC
○ 266 ○ 233 ○ 200 ○ 180 ○ 166 ○ 150 ○ 133 ○ 120 ○ 100

BUS TYPE ○ PCI ○ VLB ○ EISA ○ ISA

CACHE ○ 64K ○ 128K ○ 256K ○ 512K

RAM: ○ EDO ○ SRAM ○ 4MB ○ 8MB ○ 16MB ○ 32MB ○ 64MB ○ 128MB

MONITOR: ○ SVGA ○ VGA ○ MONO ○ 26 DPI
○ 14" ○ 15" ○ 17" ○ Non Interlace ○ 28 DPI
○ 20" ○ 21" ○ Multisync

HARD DISK DRIVE: ○ 100MB+ ○ 800MB+ ○ 1GB+ ○ 2.5GB+ ○ 4GB+
○ IDE ○ SCSI ○ ZIP DR ○ JAZZ ○ 2GB+ ○ 3GB+ ○ 6GB+

FLOPPY DRIVE: ○ 1.44MB and/or ○ 1.2MB

FAX MODEM: ○ Internal ○ External ○ 33600bps ○ 56000bps ○ 28800bps

CASE TYPE: ○ Mid Tower ○ Desktop ○ Full Tower

VIDEO CARD RAM ○ 512KB ○ 1MB ○ 2MB ○ 3MB ○ 4MB

POINTING INPUT DEVICES: ○ Any Mouse ○ MS Mouse ○ Keyboard
○ Serial ○ Bus ○ PS2 ○ Trackball ○ Joystick ○ Ball Point ○ Pen

OPERATING SYSTEM NEEDED: ○ Windows 95 ○ OS2/Warp
○ Win NT ○ Mac ○ UNIX ○ DOS/Windows 3.11

STEP THREE: MULTIMEDIA UPGRADE ○ Please Add To Step 1 & 2 Quotation ○ Please Quote Me Separately

CD ROM DRIVE: ○ Internal ○ External
○ IDE ○ SCSI

○ 8X ○ 10X ○ 12X ○ 16X ○ 20X

○ BRAND NAME ○ No Brand Name Preference
CD ROM Brand Name and Model Number

CD ROM TITLES INCLUDED: ○ 1-5 ○ 5-10 ○ 11+

SOUND CARD ○ 16Bit ○ 32Bit ○ 64Bit

SPEAKERS ○ Less Than 25W ○ 25 to 50W ○ 50 to 75W ○ More Than 75W

STEP FOUR: NOTEBOOK SECTION - Please Note You Must Make Choices In Steps 1 & 2 To Complete Step 4

SCREEN TYPE: ○ 10" ○ 11' ○ 12' ○ Active Color ○ Dual Scan ○ 13'

PCMCIA SLOT: ○ Type II ○ Type III ○ Type IV

○ Audio Capable ○ Docking Station ○ Extra Battery
○ Fax Modem ○ CD\MultiMedia

STEP FIVE: NETWORKING NEEDS: ○ Please Contact Me on My Networking Needs Indicated Below
○ Software ○ Hardware ○ Consultation ○ Design ○ Installation ○ Administration ○ MS Workgroups
○ Users 2 to 10 ○ Users 10 to 50 ○ Users Over 50 ○ Lantastic ○ Apple Talk ○ Novell ○ MS NT

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STEP SIX: UPGRADES & PERIPHERALS: ○ Ink Jet Printer ○ Tape Backup ○ Accelerator ○ Digitizer
○ Laser Printer ○ Color Printer ○ Dot Matrix Printer ○ Flat Bed Scanner ○ Hand Scanner

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QUOTATION HOTLINE

BY ROYAL P. FARROS

The Making Of An Internet Startup, Part XVII

Venture In The Valley, Conclusion

We've been discussing the Silicon Valley's venture capital process, which, like any other living organism, changes and adapts to its environment. This is a rare time in venture capital history: Too much money chasing too few investments. We'll conclude our venture capital series by talking about staying sane in this crazy venture environment.

The Bad News About High Valuations

For the first time that I can remember, entrepreneurs are getting valuations that not only seem fair, but—egad—*excessive.* Since business life is all about buying and selling (hopefully with a profit squeezed somewhere in between), you would think this is great news for the young startup.

It *is* great news, but only for those young companies that perform. If you raise venture on unrealistic expectations—and get too high a valuation—you're setting your young company up for a fall. Purchase agreements, in their infinite wisdom, plan for all eventualities, including the possibility of a distorted valuation due to "hype" factors.

What we're talking about here is the "anti-dilutive" clauses contained in all purchase agreements. The spirit of an anti-dilution is simple: "Hello, I'm a venture capitalist. I'm putting money into your company. I'm getting x% at a $y valuation. If you tried to pull a fast one on me and value your company too high—and you happen to run out of money—you better not go to other people and sell more of your company for *less than* a $y valuation. If you do, then you automatically owe me more shares, enough to retain my x%."

On the surface, this sounds fair enough. But remember, if you are even contemplating the effects of the anti-dilutive measures, it means you need to raise more money *and* at a valuation that's lower than the previous round—a so-called "down round."

Most likely, this means your company isn't performing to expectations, whether this is missing revenue numbers or not getting the visibility that increases the basic value of your company. In other words, life probably sucks at that moment: You're probably dealing with all kinds of morale issues, in-fighting, struggling to retain key employees, and of course trying to reassure your board members that you're not an idiot and that you have the situation under control.

> *If you're shooting for two to three investors, you'll want four to six sincerely interested parties. Any more than this will make it look like you're "shopping the deal around," which is bad form in any league.*

On top of all this, you now have to consider the effects of the particular anti-dilutive scheme in your signed contract.

There are different anti-dilutive schemes: The "weighted average" is the least poisonous of the bunch, but there are some—so called "full-ratchets"—that will positively rob the company blind if times get *really* tough. In these more poisonous schemes, it *is* possible to "wash out" some of your employees—that is, the venture group will get so many additional shares due to anti-dilutive considerations, that your employees' ownership gets reduced to rubble. If you think you had problems before, you ain't seen nuthin' like the fury of washed out employees.

The point here is that there's a "fair" price for everything. Believe me, I like to buy for as little as I can, and I like to sell for as much as I can. But raising money isn't normal buying and selling. The sales price is actually variable, something that a lot of high-flyers forget as they burn through their "cheap" venture money thinking the well will never go dry. Having the "supply and demand" advantage is wonderful, but if abused, can cause significant long term harm.

The Good News About Alternatives

This is too easy a concept: When you're selling, it's always great to have options.

The venture community is like every other herd: It's going to follow the pack. Having a few venture folks genuinely interested in your business will raise the *overall* interest in your deal. This is a huge advantage. We gave one venture firm our best pitch with seemingly no results. However, once they asked who else we were working with, the effect was swift: From cold to red hot.

Be careful about going overboard with the number of people you speak with, however. If you're shooting for two to three investors, you'll want four to six sincerely interested parties. Any

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- TEAC 1.44MB Floppy Drive
- 1.7GB EIDE Hard Drive
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- 104 Enhanced Keyboard
- PS/2 Mouse
- 14" SVGA Digital Monitor, .28, NI

AMD K5

Cyrix

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Cyrix MX PR200	**$509**
Cyrix MX PR233	**$569**
AMD K5-150MHz	**$509**

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AMD K5-150MHz	**$509**

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- Intel P-100MHz CPU
- Ball Bearing CPU Fan & Heatsink
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- TEAC 1.44MB Floppy Drive
- 2.1GB EIDE Hard Drive Ultra DMA
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AMD K6

intel inside pentium

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P-233MHz MMX	**$989**
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- Diamond Fire GL 1000 Pro 4MB SGRAM
- 24X IDE CD-ROM
- Sound Blaster 64 AWE
- Diamond Supra 56.6K Fax/Modem/Voice
- 240-Watt Amplified Speakers
- Keytronics 104 Keyboard
- Logitech PS/2 Mouse
- 15" SVGA Digital Monitor, .28

AMD K6

intel inside pentium

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AMD K6-166MHz	**$1179**
AMD K6-200MHz	**$1209**
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Ball Bearing CPU Fans & Heatsink
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Logitech PS/2 Mouse
17" SVGA Monitor, .26 Digital

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INTEL P-II 300MHz	**$1919**
INTEL P-II 333MHz	**$2149**

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Diamond Fire GL 1000 Pro AGP 4MB
24X SCSI CD-ROM
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Dual 4.3GB Ultra-wide SCSI Hard Drive
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Sound Blaster 64 AWE
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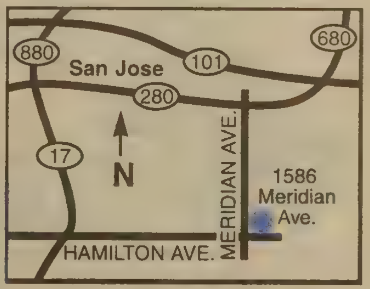

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Internet Startup *continued...*

more than this will make it look like you're "shopping the deal around," which is bad form in any league.

(Note: You always want a minimum of two investors. Contrary to what you might think, they won't "team up" on you. Instead, you will get twice the resources, business contacts, and market pull. While venture firms do talk with each other, don't forget that each has its own agenda. It's nice to be high on one firm's priority list just in case the investment space you're in loses favor with the other.)

The Good And Bad News About Taking Venture Capital

This one is easy, too. When you get venture capital, you are on your way to creating a wonderful new entity in the world. At the same time, you... or your business partner... or your key programmer... or the entry level person in customer service... or all of you collectively... don't mean as much as "the company" does. Your main responsibility is to your shareholders.

And don't forget that not all shareholders are created equal: In the case of a liquidation, preferred shareholders (the people that put up the money) get paid before common shareholders (the people that do the work). It's ugly but true: In a failure scenario, you—the entrepreneur—can be left with zippo.

In truth, this is *exactly* the reason why your main concern should be the shareholder. You want to maximize *everyone's* value, remembering that you and everyone else in the company are still very much shareholders. You aren't working as hard as you will to avoid liquidation, rather, to realize the upside bonanza. This won't—can't—happen running your business like a "mom & pop shop." Or a charity center. Or a playground.

While all of this may make sense to you, you have to be emotionally prepared for this. Your life *will* change. You now have a "teacher" or "big boss" who will be evaluating you... grading you... challenging you... even replacing you. You win when the company wins, even if you are no longer with the company.

If you have a problem with this concept, you better think twice about taking that VC money being thrown at you. There aren't any "do-overs" at this level.

Venture In The Valley: The Conclusion... Finally!

Whew! What was that? A ten-parter? There's only one more possible tip I can give you: Raise money earlier than you want to; raise more money than you want to.

Okay, that's two tips, but they both will help you stay sane in this crazy, competitive roller coaster ride called an Internet startup! ■

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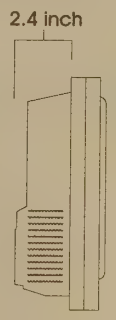

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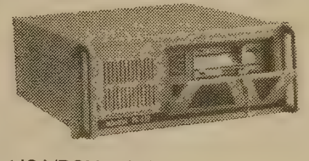

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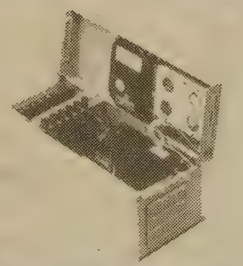

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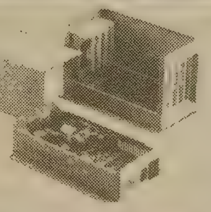

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- Cooling fan
- 65W Power Supply

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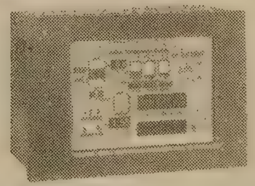

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- 65W Power Supply

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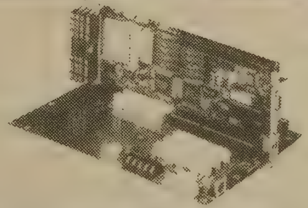

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32-Bit Computing

Some Assembly Required: Putting It All Together

Aside from having to shop for all system components and technical support, a compelling reason for purchasing integrated systems from OEMs is the assembly process—even technically savy end-users prefer not to do that themselves.

But suppose you do not want to compromise and with help from this series, will acquire best-of-breed components. Like, for example, those shown in Listing 1, chosen as the first evaluation set. I took these components to DSi, the series' integrator; based on our experience, here's what you need to pay attention to.

Assembling components into a working system seems rather straightforward:

- Attach power supply to case
- Attach CPU to motherboard
- Attach motherboard to case
- Attach disk and floppy drives to case
- Insert cards into slots
- Connect power supply to drives
- Connect drives to controller(s)

But the devil is in the details.

There are many system cases (or chassis) out there, ranging in price from $35 to $300. The choice should be governed by your specific needs and preferences, but here are some general considerations.

A major criterion for choosing a case is the number of drive bays and how many of them are exposed (front access). This depends on what drives you want and whether you prefer them internal, rather than external. Internal drives save space and cable clutter on the outside, as well as a bit of money, but installing/ removing them is more of a hassle.

For reasons that I will make clear in future articles, the disk subsystem should be SCSI (I will also explain why it is a good idea to use at least two hard drives, even by keeping a slower one from an older system). Not only will this maximize performance, but a wide (16-bit) SCSI controller allows for 15 devices!

You will want a CD drive and, probably, a removable disk drive for backups (disks are faster and less fussy than tape). If you prefer internal, then together with two hard drives and the floppy drive, the case should have a minimum of five bays, at least three of which (for the floppy, CD and removable) ought, for obvious reasons, to be exposed. For expandability, get one with seven, or eight (high performance hard drives generate more heat and having an empty bay between them is a good idea, as is having at least one or two drives within the fan's air flow).

High-performance hard drives generate more heat; having an empty bay between them is a good idea, as is having at least one or two drives within the fan's air flow.

To back up hard drives you need large removable disk drives, such as the 1.5GB SyJet. For archiving and storing large files you can use the cheaper, smaller ones, such as Zip, SyQuest's EZFlyer, or a LS-120. The Zip is the most popular; the EZFlyer is larger (230MB) and faster; the LS-120, though slower, has one edge over them: it can also read and write regular 1.44MB floppies, saving you a bay. It's probably best to get both large and small removables (more on removables, including some other options in a future article).

Based on experience with AT systems, the ATX form factor is, indeed, an improvement. Thus, even though my old AT system was a full-tower and the new is a mini-tower, the reduced internal cable clutter and the system board size and layout make it easier to access cards, drives, memory and CPU.

The serial, parallel (and USB) ports are on the back of ATX system boards, eliminating two internal ribbon cables and the hassle of using them to connect the ports on the face of the AT system board to the back of the case. However, for this to work, ATX cases must come with an I/O shield which fits over the port layout of your specific system board (the system can be installed and operated without the shield, but will have a gap in the back of the case, allowing dust in and affecting the internal air flow—not recommended for a high performance system).

The port layout is part of the ATX specifications, but like all industry "standards," it allows variations (in this case tens of them!), so the case may arrive with the wrong shield, or even without one. Unfortunately, the system board must be taken out to add the shield later, so make sure to get the correct shield with the case.

Given the $10–15 difference in price, go for a 300W ATX power supply, rather than 250W.

Note: There is a more recent set of form-factor specifications—NLX—which de-emphasizes the motherboard and uses a riser card. But while some products based on it exist, it is somewhat controversial and ATX predominates. For information on NLX, see Resources).

Since I will sometimes have three hard drives to test and some will rotate at 10,000RPM and run hotter, I chose the case in Listing 1 because

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○**Intel** Anchroge **430TX** System
- Intel Pentium CPU with Fan
- with 512k Cache and Support MMX
- Built-in EIDE & 16550 IO Ports
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Pentium 200/200MM........$940/960
Pentium 166MMX $935
Pentium 166/150..............$920/910

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○**ASUS TX** Pentium **430TX** System
- Intel Pentium CPU with Fan
- with 512k Cache and Support MMX
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- Built-in EPP & Floppy I/F Ports
- 32MB 168 Pin SDRAM Dimm
- Teac 1.44MB Floppy Drive
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- Mitsumi 16X IDE CDROM
- Diamond 3D2000 PCI with 2MB
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Pentium 233MMX $980
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Pentium 166/166MMX.....$880/895
Pentium 150/133MHz.............$870

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- Mid-Tower Case w/. UL PS
- MS Mouse & 104 Keyboard
- MS NT for Workstation 4.0 on CD

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Pentium Pro Dual 200/256....$2740
Pentium Pro 200/512K $2950
Pentium Pro 200/256K $2190

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○**ASUS/Intel** Pentium II **440LX** System
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- 512K L2 Cache Built-in
- Built-in EIDE & 16550 IO Ports
- Built-in EPP & Floppy I/F Ports
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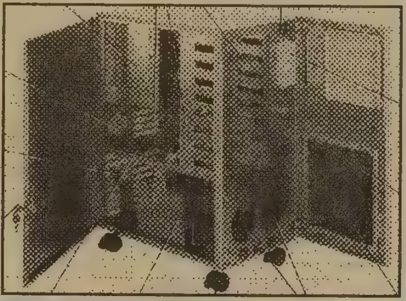

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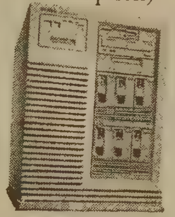

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ST34572N/W	4.3GB	7200RPM	8ms	$510/520
ST34572WD/WC	4.3GB	7200RPM	8ms	$650/610
ST34501N/W	4.5GB	10000RPM	8ms	$620/630
ST34501WD/WC	4.5GB	10000RPM	8ms	$750/710
ST19171N/W	9.1GB	7200RPM	8ms	$770/780
ST19171WD/WC	9.1GB	7200RPM	8ms	$990/810
ST19101N/W	9.1GB	10000RPM	8ms	$980/990
ST19101WD/WC	9.1GB	10000RPM	8ms	$1150/1050

Fujitsu(UN/UW)

M2954 NS/WS	4.4GB	7200RPM	8ms	$490/520
M2949 NS/WS	9.1GB	7200RPM	8ms	$770/790

IBM(UN/UW)

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DCHS34300N/W	4.3GB	7200RPM	8ms	$520
DCHS39100W	9.1GB	7200RPM	9ms	$790

WD(UN/UW)

WDE2170S/W	2.1GB	7200RPM	8ms	$350
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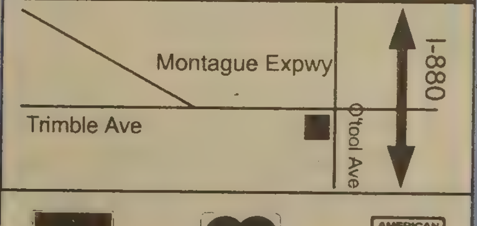

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32-Bit Computing *continued...*

it is a capacious ATX mini-tower with eight 5.25" bays, which opens via a sliding side, for more convenient access. Moreover, it has a version which exposes all bays, making drive swapping easier. You can get the version exposing only four bays (first on the right), for slightly less. I also prefer casters.

For best performance in a stand-alone workstation environments, the SCSI controller and hard drives should be wide UltraSCSI (see Listing 1). CD-ROM and removable drives, however, are narrow (8-bit), so wide SCSI controllers, such as Adaptec's AHA2940UW, have connectors and come with internal cables for both narrow and wide drives. Normally, each cable has connectors for two drives and their length (both overall and between connectors) may not fit your specific case/drives configuration. If so, as well as for performance and reliability purposes, it is highly recommended to get quality SCSI cables. All this will be discussed in disk subsystem articles on, but see Sidebar called "The Gold Standard" for system assembly aspects.

When In Doubt, Let Pros Do It

Even though the assembly process is, in principle, not complicated, having it done by an experienced integrator is, nevertheless, recommended. Having assembled many different systems, they have seen it all; they're more efficient installers and better at avoiding, or solving problems. You surely don't want to be on your own if anything goes wrong, or you can't figure something out (while I was at DSi, a customer was having problems with his system and a technician spent considerable time resolving them, seemed knowledgeable and was accomodating).

Examples:

- Except for CD-ROM, drives are commonly 3.5" and can only be installed in standard 5.25" bays with screw-on converters which extend their width accordingly; and mounting rails. These usually do not come with the case (except, perhaps, for the floppy drive), or with the drives. I had no extenders and rails, so DSi provided them.
- The LS-120 drive came without the front bezel and could not be installed, so DSi supplied a temporary regular floppy drive to complete the installation.
- By mistake, the case came with the wrong I/O shield; while DSi tried and could not fit one of their own, an integrator may well be able to in other cases (since I was on deadline, DSi kindly agreed to reinstall later; this prompted me to take a look at a case which uses only one screw, instead of the usual four, for the system board, and also offers screwless drive installation; stay tuned).

(I would like to thank William Lam and Eddy from DSi, Karl Hehn from California PC Products, and Kaileen Noneman, Kai Hu, and Diane Noneman from Kingston Technology for their cooperation.). ■

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Resources and Listing 1 continued on page 60

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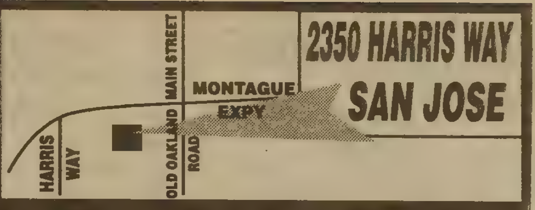

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AMD K5 100/133/200/233MMX

AMD K5 100/133/200MMX/233MMX
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3.1 Gigabyte Wester Digital Fast IDE	$245
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Viewsonic 15GS 15" 0.28 1280x1024	$360
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ATI 3D Expression 2MB PCI Dram	$125
ATI 3D Expression 4MB PCI/PC2TV	$175
ATI PRO TURBO 4MB/8MB	$200/260
Diamond 3D 3000 4MB VRAM	$230
Diamond 2500 1MB DRAM	$69
Diamond 2500 2MB DRAM	$75
#9 FX MOTION 771 VRAM 4MB	$300
#9 FX MOTION 771 VRAM 2MB	$180
#9 REALITY 332 3D DRAM PCI 2MB	$110
#9 IMAGINE 128 4MB	$330

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Zoltrix 14.4 Fax/Modem	$45
Zoltrix 28.8K V.34 BIS Fax/Modem	$90
SMART 28.8K V.32 bis, V.42 bis I/E	$90/135
US Robotics Sportster Winmodem 28.8	$85
US Robotics Sportster 33.6/56	$115/185
Motorola Bitsurfer PRO ISDN Modem I/E	$298/325
US Robotic Sporter 56k I/E	$180/199

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Dash DC-2000 VLB IDE& I/O	$35
Dash VLB IDE & I/O Suport 2.88FD Fast	$40
Conner CNR-4320 2 Gibyte tape Backup	$745
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Promise DC-4030VL IDE VLB CACHE	$105
Logitech Mouse Man serial	$35
Adaptec 1542C/1542C Kit SCSI	$145/180
Adaptec 2840 PCI SCSI-2 w/ Kit	$185 /$215
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RESOURCES:

ATX Specifications
www.pcguide.com/ref/mbsys/mobo/form.htm

NLX Specifications
www.pcwebopedia.com/NLX.htm ; www.teleport.com/~nlx/

Device-Bay Specifications
www.device-bay.org/

Listing 1: Configurations Used In This Series

SYSTEM BOARD

SY-6KB, $160 (direct)
SOYO Tek
(818)330-1712
www.soyo.com

PROCESSOR SUBSYSTEM

Pentium II/300MHz Processor, $720 (actual)
US Computers
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uscomputers@csinets.com

10ns/66MHz SDRAM DIMMs
64MB, $249 (direct), 128MB, $489 (direct)
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(510)668-2088
www.unigen.com

GRAPHICS SUBSYSTEM

FireGL 1000 Pro Graphics Adapter, $190–$210
Diamond Multimedia
(408)325-7000
www.diamondmm.com

FlexScan FX-E8 21" Monitor, $2,188–$2,633
Eizo-Nanao Technologies
(562)431-5011
www.eizo.com

SCSI DISK SUBSYSTEM

AHA2940UW Adapter, $199–$306
Adaptec Inc.
(408)945-8600
www.adaptec.com

Viking II 9GB Disk Drive, $895 (MSRP)
Quantum Corp.
(408)894-4000
www.quantum.com

UltraStar 9ZX 9GB Disk Drive, $1,245 (MSRP)
IBM Storage Systems Division
1-800-IBM-7777
www.ibm.com/storage

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UltraPlex 14-32X/CAV CD-ROM UltraSCSI Drive, $280–$323
Plextor Corp.
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1.5GB Disk, $198(3)–$78(1)
SyQuest Technology
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www.syquest.com

SuperDisk LS-120 (IDE) Floppy Drive, $180–$247
120MB Disk, $27-37
Imation Enterprises Corp.
1-888-466-3456
www.imation.com

ASSEMBLY

ATX Mid-Tower Case, $171 ($191 lockable) (direct)
ATX 300W Power Supply, $89 (direct)
Data Port VI Removable Drive Enclosure, $155 (direct)
California PC Products
(408)637-2250
www.calpc.com

Data Express Removable Drive Enclosures
DE100 (hard drives), $207 (MSRP)
DE150 (removable drives) $186 (MSRP)
Hot Swap Option, $64 (MSRP)
Kingston Technology Company
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www.kingston.com

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Sidebars continued on pages 72 & 187

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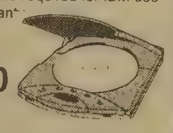

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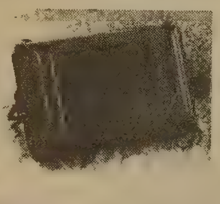


- ♦ Kalidor Model K2100 with 640 x 480 VGA LCD.
- ♦ Dot pitch 0.23mm, screen size: 5.98" x 4.46"
- ♦ 9.7"Long x 6.4" Wide x 1.8" High.
- ♦ Pressure-sensitive screen for pencomputing.
- ♦ TI486SXLC-25MHz processor.
- ♦ 170MB Hard drive, 256KB flash memory
- ♦ 8MB RAM - expandable to 16MB
- ♦ Advanced nickel-metal hydride battery, 2 hrs. cont. use.
- ♦ Recharge time as little as 2 hours!
- ♦ Power mgmt. system can give 6 to 8 hour operation.
- ♦ 1-Serial port (9-pin), 1-Parallel port (20-pin Cent.)
- ♦ IBM PC-AT compatible with DOS and Windows 3.1 installed.
- ♦ New, in box with manual, AC adapter/charger.
- ♦ 30-Day Warranty.

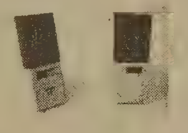
Recently listed elsewhere at $3600!!

HSC# 17116 $399.00

Super Sounding Speakers!

Tired of the cheesy sound coming from those give-away speakers in your multimedia kit? Try upgrading to these sonic wonders...you'll have to hear them to appreciate the difference these will make without blowing your budget!

GNT2500 2-way Bass-Reflex speakers
- ♦ 3.5" woofer, 1" piezo tweeter
- ♦ 15W built-in amplifiers, 80W peak, 5.4W RMS
- ♦ 40 - 20,000 Hz, built-in SRS 3-D stereo
- ♦ Measure approx. 3.75" x 6.125" x 9.25" tall
- ♦ AC adaptor, audio cables included
- ♦ On-off switch, 3-D switch, tone & volume controls
- ♦ Attractive off-white finish with grey grille-cloth

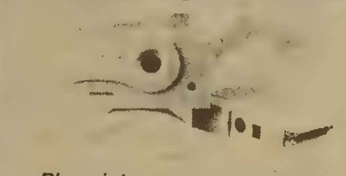


HSC#16670 $29.95

GNT3000 3-way Bass-Reflex speakers
- ♦ 4" woofer, 2" midrange, 1" piezo tweeter
- ♦ 23W built-in amplifiers, 120W peak, 20W RMS
- ♦ 20 - 20,000 Hz, similar to GNT3500, but no SRS 3-D
- ♦ Measure approx. 6.25" x 6.5" x 9.75" tall
- ♦ AC adaptor, audio cables included
- ♦ On-off switch, bass, treble & volume controls
- ♦ Attractive off-white finish with grey grille-cloth

HSC#17085 $39.95

Internet Digital Camera!



Plugs into PC Parallel Port!

Motion and Still Video Capture

- ♦ Compro 'D-Cam' Color Digital Camera.
- ♦ No Video Capturing Card or power adapter needed!
- ♦ Great for video conferencing, web page building, family photos, hobby applications...so much more!
- ♦ Adjustable focus down to 40mm. (less than 2"!)
- ♦ 16.8 Million true color/256 gray scale.
- ♦ Windows 3.x, Windows 95 compatible
- ♦ Installation software, instructions included

HSC#17090 $99.00!

Infrared Connections!

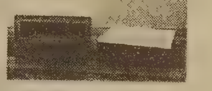
- ♦ IBM "Options" series ISA-Bus and PCMCIA card adaptors will add industry standard infrared communications capability to your desktop PC (with ISA slots) or notebook computer! (Win95 instructions available on our website)
- ♦ Allows wireless connection to compatible notebooks, workstations, printers, and other peripherals supporting the Infrared Data Association (IrDA) standard.
- ♦ Also will emulate a COM port for cable-less hook-ups
- ♦ Communicates up to 115KBps, or up to 1.152MBps with the included TranXit Software.
- ♦ Operates over distances up to 3 meters (10 ft.)
- ♦ Includes Card, transceiver module, driver disk & book
- ♦ Both styles new in box, 90-day warranty

HSC#16483 PCMCIA Version $19.95

HSC#16813 ISA-Bus Version $19.95

***Or a package deal...get both for* $29.95**

SCSI Device Cases



16575 16960

Useful cases for your computer when you run out of drive room in your main case! These will accommodate many types of SCSI drives, from CD-ROM, hard disk, tape, ZIP, etc

- ♦ Deluxe quality case, 7" x 4.5" x 10.75", made for Olympus Optical, has 5.25" open front bay, SCSI diagnostic indicator on rear panel, 30 watt fan-cooled power supply, IEC power cord included. Assembled in USA.

HSC#16575 $49.95

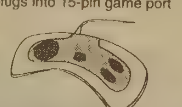
- ♦ Small horizontal case, 6.5" x 2" x 8.5", for 3.5" drives, small 17 watt fan-cooled power supply (5V @ 1A, 12V @ 1A)

HSC#16960 $37.95

All cases are new, and feature 50-pin Centronics-style daisy-chain connectors, internal 50-pin cable and SCSI ID switch.

Bargain Game Controller!

- ♦ Quickshot QS-191 Game pad for IBM Compatibles
- ♦ Faster action, less fatigue than a joystick
- ♦ Why pay more for a game device?
- ♦ Brand new, plugs into 15-pin game port



HSC#17054 $3.95

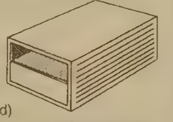
Colossal CD Pack!

- ♦ CD-ROM extravaganza for Windows 3.1/95 (except #9)
- ♦ Ten titles bundled in one handy folder...something for every member of the family:
  - 1997 Grolier Encyclopedia -- over 50,00 entries, illustrations, Internet links, and comprehensive Atlas.
  - Automobile Almanac -- Research over 200 car models from around the world...reviews, photos, specs.
  - Internet Online -- Software & training to become a skilled Net-Surfer in no time!
  - The Animals 2.0 -- contains over 120 full motion videos, hundreds of photos and CD quality sound
  - The Real Deal -- ten classic card games, including Whist, Pinochle, Hearts and Crazy Eights
  - Home Office Assistant -- business resource directories for prospecting clients, locating parts, etc.
  - Family Dictionary -- Learn vocabulary, word games, 500 color illustrations, 200 animations
  - Reference Library -- Dictionary, Almanac, Thesaurus, Encyclopedia, many more useful references
  - Al Unser Jr. Arcade Racing -- join Indy 500 winner for the ride of your life! (Win95 only)
  - Cyberspeed - high-tech, high-velocity motor race game of the future...hold on to your joystick!

HSC#17127 $24.95

SCSI Drive Case Deal!

- ♦ Bargain case for 5.25" drives, brand new!
- ♦ 7" x 4.5" x 10.5" overall size
- ♦ 50-pin SCSI connectors
- ♦ SCSI ID switch
- ♦ 65W Power Supply
- ♦ Fan-cooled, uses standard IEC Power cord (not included)



HSC# 17130 5.25" SCSI Drive Case $39.95

Function Generator Deal!

- ♦ Used Wavetek 182 Function Generator
- ♦ .2 Hz to 2 MHz, sine, square & sawtooth wave
- ♦ Triggered input, DC offset control
- ♦ No test bench should be without one!
- ♦ High quality name brand test equipment
- ♦ Used, tested good, 30-day warranty

HSC#93637 $179.95

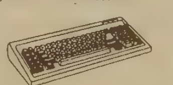
Media Vision PCMCIA Sound!

- ♦ Great for Portables, Laptops with PCMCIA Slot
- ♦ External pod has joystick port, mic. input, line in & line out jacks, volume control.
- ♦ Installation software, instructions included
- ♦ Windows 3.x, Windows 95 compatible
- ♦ New in OEM packaging (no box), 90-day HSC warranty
- ♦ We had these before at $39.95 and they went fast!

HSC#17036 $29.95

Spill-Resistant Keyboard!

- ♦ Keypad has sheild to protect keyswitch & electronics.
- ♦ 101-key keyboard has standard QWERTY layout
- ♦ Coiled cord with standard 5-pin DIN connector
- ♦ Brand new, 90-day warranty
- ♦ Similar to illustration



HSC#17088 $14.95

Bargain PCs and VGA Monitors !

- ♦ Just arrived!...20 pallets of great buys.
- ♦ 486-based Compac and and IBM systems.
- ♦ Various configurations, removed from service.
- ♦ Refurbished VGA monitors from $89.00!
- ♦ Perfect for second system or students/families!

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- ♦ Site is constantly being revised, please visit often!
- ♦ Check out the amazing "Gizmo of the Week" feature!

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- ♦ That's right, get HSC's on the World-Wide Web!
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- ♦ Adobe .PDF files are available for download and viewing
- ♦ Or drop on by and pick one up ..we'd love to see you!

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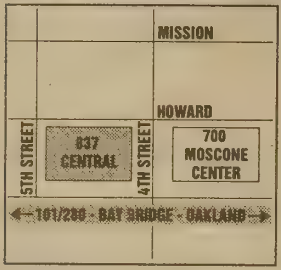

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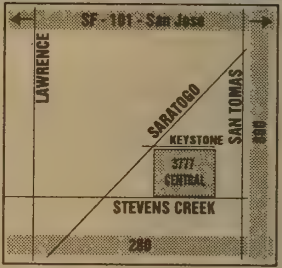

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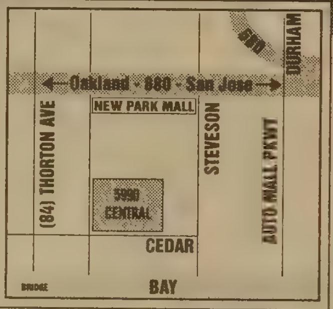

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- **32MB SDRAM**, 512K Pipeline Cache
- FIC PT2011, 430TX, ATX w/USB
- **Western Digital 4.3GB** EIDE HDD
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- Altec ACS45 Speakers w/Sub-Woofer
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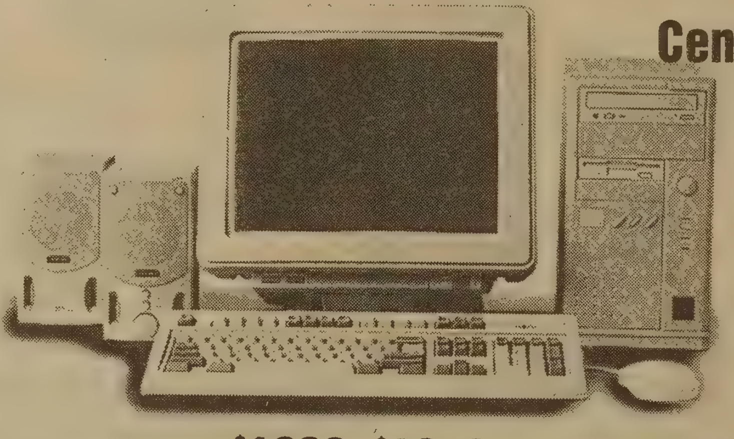
- Microsoft pS/2 w/Pad
- #A2 ATX Mid Tower Case w/230W
- 33.6 Internal Fax Modem
- **Monitor not included**
- **2 Months of Free Internet with Sirius**

200MHz Pentium® MMX **$1239**

233MHz Pentium® MMX **$1319**



Central Graphics Series III

- **Intel Pentium®** Processor
- **32MB SDRAM**, 512K Cache
- FIC PT2011, 430TX, ATX w/USB
- **Quantum 6.4GB** IDE HDD
- **16X** CD-ROM
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- **Matrox Millennium II 8MB PCI**
- ESS 16 IDE w/Yamaha OPL-3 Sound
- **Yamaha M7 Multimedia Speakers**
- 33.6 Internal Fax Modem
- **Keytronic PS/2 Keyboard**
- Microsoft Intelligent PS/2 Mouse w/Pad
- **Microsoft Windows 95** CD
- #A2 Mid Tower Case ATX
- **Monitor not included**
- **2 Months of Free Internet with Sirius**

$1219 200MHz Pentium® MMX

$1299 233MHz Pentium® MMX

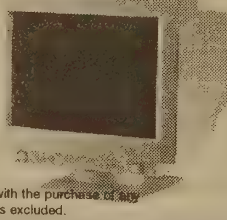
MONITOR

HITACHI *SuperScan* Monitors

CM500U

15" (13.7" Viewable Size)
Max Resolution
1280x1024 @ 65Hz
Flat Screen, Non-Interlace, MPRII

$280*



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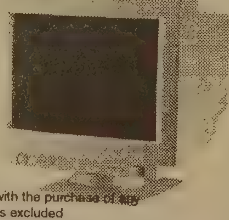
CM620U

17" (15.9" Viewable Size)
Max Resolution
1280x1024 @ 60Hz
Flat Screen, Non-Interlace, MPRII

$530*



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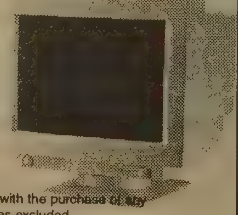
CM500U

19" Monitor .26
Max Resolution
1600x1280 @ 75Hz
Flat Screen, Non-Interlace, MPRII

$879*



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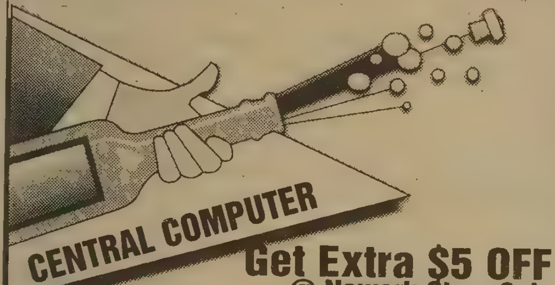
GRAND OPENING SPECIALS

SPEAKERS

GLi768: 3D, 380W, 20-20KHz	$26
GLi969: 3D, 380W, 20-20KHz	$27
SD202: Full Range, 180W	$19.95
SD737: Amplified, 120W	$16.95



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Hitachi CM751 19"	$895
Iiyama S-901GT 19"	$829
Sceptre P75A 17"	$445
Viewsonic P815 21"	$1265

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NETWORK

3Com 3C905-TX PCI TP	$75
Intel PILA 8460 TP	$59
Lanpro 2 Port Switch	$175
Wisecom 8 Port Hub	$69

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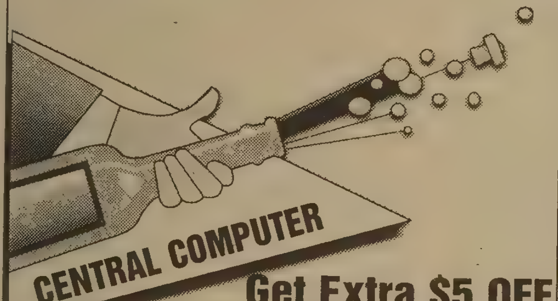
MOTHERBOARD

J-Bond PCI500CK	$105
J-Bond PCI500CK UWSCSI	$229
Supermicro DLS440LX	$379



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HARD DRIVE

ZIBM 2GB UW-SCSI	$189
Quantum 2GB SCSI-2	$209
Samsung 3.4GB IDE DMA	$175
Western Digital 3.2GB IDE	$175

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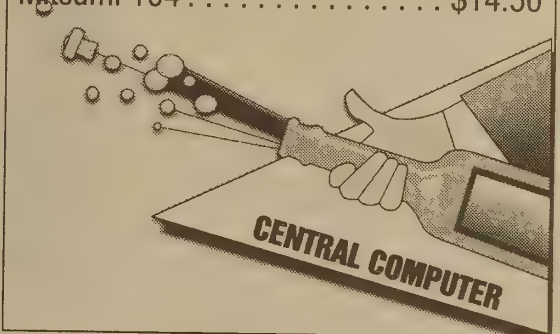
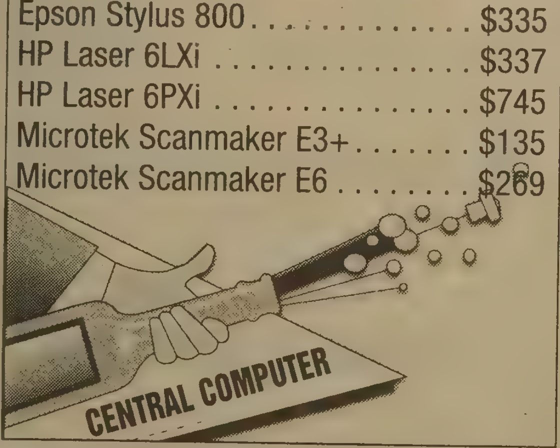
KEYBOARD

EZ Natural	$28.50
Keytronic (White)	$24
Keytronic (Black)	$39
Mitsumi 104	$14.50



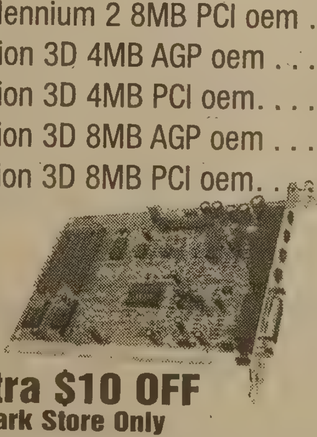
PRINTER & SCANNER

Epson Stylus 600	$239
Epson Stylus 800	$335
HP Laser 6LXi	$337
HP Laser 6PXi	$745
Microtek Scanmaker E3+	$135
Microtek Scanmaker E6	$269



VGA CARD

Matrox Millennium 2 4MB PCI oem	$165
Matrox Millennium 2 8MB PCI oem	$245
#9 Revolution 3D 4MB AGP oem	$199
#9 Revolution 3D 4MB PCI oem	$199
#9 Revolution 3D 8MB AGP oem	$259
#9 Revolution 3D 8MB PCI oem	$259



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Megahertz XJ1560	$209
USR Courier 56K Ext.	$245
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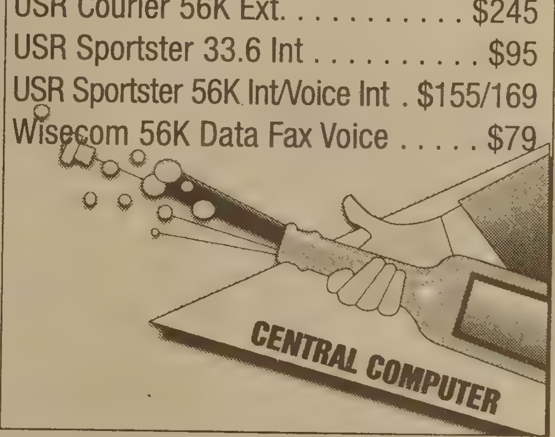
USR Sportster 56K Int/Voice Int	$155/169
Wisecom 56K Data Fax Voice	$79



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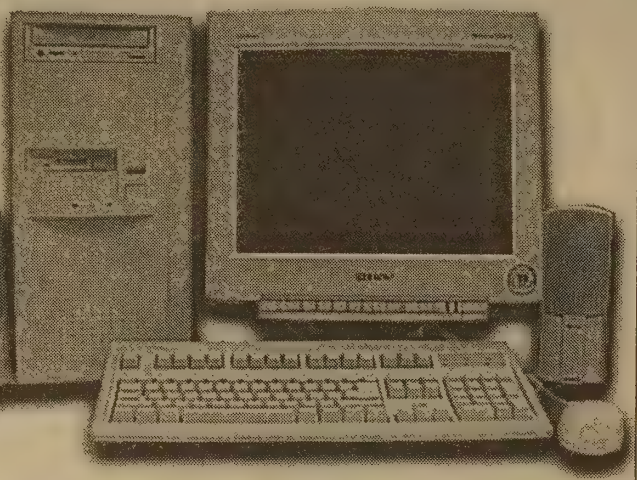
Central Home Series



- Intel Pentium® Processor
- **16MB EDO** RAM, 512k Pipeline
- J-Bond PCI500C-K 430TX Motherboard
- **Samsung 2.5GB** EIDE HDD
- 16X max CD Rom
- Teac 1.44MB Floppy
- **Diamond** 2500 2MB PCI
- ESS 16 IDE w/ Yamaha OPL-3 Sound
- IWG500 Mid Tower Case
- Mitsumi ZW Keyboard
- Microsoft Serial Mouse w/ Pad
- SD693 Multimedia Speakers
- 33.6 Internal Fax Modem
- **Microsoft Windows 95** CD
- **Monitor not included**
- **2 Months of Free Internet with Sirius**

166MHz Pentium® MMX	**$759**
200MHz Pentium® MMX	**$785**
233MHz Pentium® MMX	**$869**

MMX intel inside pentium
intel inside
Microsoft Windows 95

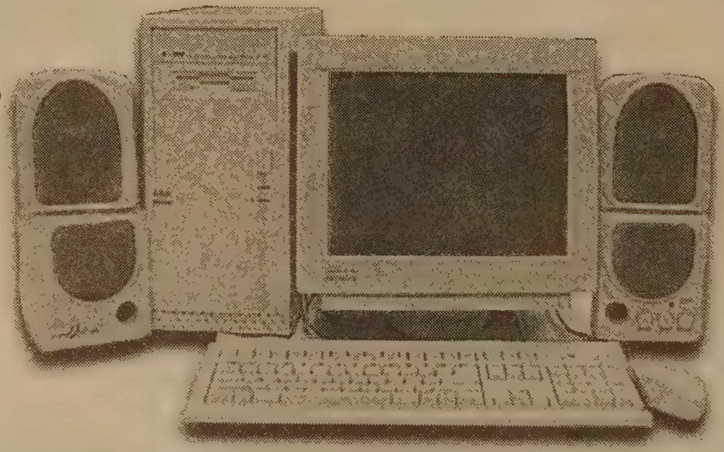
TOSHIBA EQUIUM 5200D

- **Intel Pentium® Processor w/ MMX**
- **32MB EDO** DRAM, 256k Cache
- **2.38GB** HDD, 1.44MB FDD
- 12X IDE CD-ROM
- **ATI 3D Rage II 2MB SGRAM**
- **Creative Labs Vibra** 16C Sound
- **Intel EtherExpress Pro/100B** Lan Adapter
- PS/2 Keyboard & Mouse
- **Microsoft Windows 95** OSR2
- Desktop Case
- **3 Years Manufacturer Warranty**
- Monitor not included

Options:
-32MB upgrd $130
-15" Toshiba Monitor $375
-17" Toshiba Monitor $655
-USR 56k Modem Int $165

200MHz Pentium® MMX $1399

Central SOHO Series III



- Intel Pentium®II Processor
- 32MB SDRAM DIMM, 512k L2 Cache
- Intel Atlanta AL440LX w/ AGP
- ATI Xpert@Work 4MB AGP
- Western Digital 3.2GB UltraDMA HDD
- 24X max IDE CD Rom
- Teac 1.44MB Floppy
- 56K Internal Fax Modem
- Yamaha OPL-3 3D Sound Card (on board)
- SD737 Multimedia Speakers
- Keytronic PS/2 Keyboard
- Microsoft PS/2 Mouse
- #A2 Mid Tower Case w/235W ATX
- Microsoft Windows 95 CD
- Monitor not included
- 2 Months of Free Internet with Sirius

233MHz Pentium®II	**$1265**
266Mhz Pentium® II	**$1375**

Microsoft Windows 95

HEWLETT PACKARD BRIO D5556A

- **Intel Pentium® Processor w/ MMX**
- 32MB RAM, 256k Cache
- **3.2GB** HDD, **24X** CD-ROM
- **S3 Trio64-V2 2MB**
- PS/2 Keyboard & Mouse
- **Microsoft Windows 95 OSR2**
- **Microsoft Word**
- Mid Tower Case
- **3 Years Manufacturer Warranty**
- Monitor not included

Options:
-32MB upgrd $179
-15" HP Monitor $325
-17" HP Monitor $599
-USR 56k Modem Int $165

233MHz Pentium® MMX $1169

BUNDLES

-Microsoft Bundle #1 (Home) .... add $39
(Encarta '97/ Works 4.0/ Money)

-Microsoft Bundle #2 (Sport) .... add $24
(Flight Simulator 5.1/ Complete Baseball/ Golf 3.0)

-Microsoft Bundle #3 (Kids) .... add $34
(Creative Writer/Explorapedia/Magic School Bus)

Microsoft Office 97 Small Business Edition
w/complete CD and Manuals
+ Microsoft Works/Money............ **add $249**

Academic Office Suite (Student ID required)
- Microsoft Office 97 Standard............ **$145**
- Microsoft Office 97 Professional......... **$189**

Note: add $20 for preload/installation

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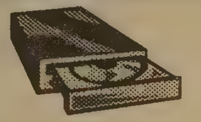
HARDWARE

1. CD DRIVES & SOUND



ADDONICS

20X Max Pocket CD Drive PCMCIA	315

CREATIVE LABS

Midi Kit + Software	65
Sound Blaster 16 PnP (w/o IDE)	49
Sound Blaster 64 AWE oem / Value Pak	79/95
Sound Blaster 64 AWE Gold	179

MITSUMI

FX1402S2 16X IDE Int	69
FX240S 24X IDE Int	79

NEC

CDR-1610 16X SCSI Int oem	95
CDR-1800 24X IDE Int oem	85
CDR-1810 24X SCSI Int oem	119

Pioneer

DR511 24X IDE Int	85
DVD101 IDE Int	189
DVD301 SCSI Int	279

PLEXTOR

PX-20X SCSI Int (Tray)	199
PX-32X SCSI Int (Caddy)	269
PX-32X SCSI Int (Tray)	229

SAMSUNG

SCR-2431 24X IDE Int	85

SONY

CDU-611 24X IDE Int	85
PRD-650 Portable 6X w. PCMCIA Kit	315

TEAC

CD524E 24X IDE Int	85
CD516S 16X SCSI Int	115
CD532E 32X IDE Int	105

TOSHIBA

DVD Drive IDE w. Kit oem	279
5701 12X SCSI Int	99
XM6102B 24X IDE Int	85
XM6201 32X SCSI Int	115
XM6202B 32X IDE Int	105

TURTLE BEACH

Multi-Sound Fiji 20-bit / w. Digital I/O	275/329
Multi-Sound Pinacle 20-bit / w. Digital I/O	375/425
Pinacle Project Studio	475
Tropez Sound 32 Voice	145
Wave Table Sound 32	99

OTHERS

CD Caddy	3.99
CD Jewel Case for 1 / 2 / 3-CD	0.55/0.65/0.55
CD Wetsuit for 12 / 24-CD (Kensington)	9.95/13.95
Decoder Card	129
ESS 16 IDE 3D Sound Card	25
Gravis Ultrasound Plug & Play	135
Gravis Ultrasound Pro, PnP	175
J-Bond MF-719 Yamaha 3D 32 w. Midi	39
Television: Telesound EX16 IDE	**(68)*

WRITABLE CD DRIVES:

Adaptec Easy CD Creator Deluxe Software	89
Artmedia 6X/2X/2X IDE Int	399
Elektroson Gear CD Creator Software	95
HP C7200i Rewritable 6X/2X Int	415
HP C7200e Rewritable 6X/2X Ext	515
Phillips Omniwriter Rewritable 6X/2X Int, oem / reg	459/499
Ricoh 6X/2X SCSI Int / Ext	469/569
Sony Spressa 928E/H 8X/2X IDE Int	329
Sony Spressa 960 6X/2X SCSI Recordable	385
Yamaha CDR-400 6X/4X Ext	569
Yamaha CRW4001 EIDE Int, 6X Read, 4X Write, 2X Re-write	499
Yamaha CRW4260 TIPC 4X/2X/6X SCSI Int	589

3M or Pioneer CDR 74 min. / 10-pk	4.50/43
HP Rewritable CDRW (C4431)	19.95
HP CDR 74 min. (C4432) / 10-pk / 25-pk	3.59/29/65
Kodak CDR 74min. / 10-pk / 25-pk	3.50/29/64
Ricoh CDR 74 min. / 25-pk	*(1.99)/44
Ricoh CDRW 74 min. Re-writable	17.95
Sony CDR 74 min. / 10-pk	3.95/37
TDK CDR 74 min. oem / 10-pk	2.50/21
TDK CDR 74 min. reg / 10-pk	3.75/33

SPEAKERS:

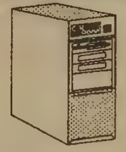
Altec ACS45 w. Sub-Woofer	79
Altec ACS51 / ACS52 / ACS53	65/85/125
Altec ACS150 / ACS500	99/295
Labtec Stereo LCS-150 / LCS-600	18.95/24.95
Labtec 1002 (10W)	49
Labtec 1224 Space Server 3D Stereo (10W)	69
MLF-CP55 Mini Speakers (4W)	**(4.99)*
Yamaha YST-M7 (5W)	**(39) 45*
Yamaha YST-M15	**(59) 69*
Yamaha Systems (45W)	169

SPECIALS

GLi768: 3D, 380W, 20-20KHz	26
GLi969: 3D, 380W, 20-20KHz	27
HM2: Headset w. volume control	**(7.95)*
KC3: Headphone + Microphone	**(6.95)*
MC1: Pocket Size Microphone	**(4.95)*
MC2: Central Computer Microphone	**(2.95)*
MC2: Nicole Condencer Microphone	3.45
SD202: Full Range Speakers, 180W	19.95
SD322: Sub-Woofer	**(32)*
SD688: Deluxe 3D Surround 360W	**(45)*
SD693: Amplified, 80W, 50-15KHz	9.95
SD737: Amplified, 120W, 20-20KHz	16.95
SD880: Amplified Stereo Speakers 200W	**(25)*
SD922S: 3D Systems, 480W, w. Sub-Woofer	95
SD969: Amplified, 380W, 20-20KHz	26.50
SD980: 3-way Speakers 180W	**(35)*

Resellers CALL for wholesale prices!

2. CASE



#1: Baby AT w. 230W Power	39
#2: Baby Tower w. 230W Power	29
#3: IWG500 Mid Tower w. 230W Power	59
#4: Mid Tower w. 250W Power	39
#5: CF-8502A Mid Tower, 250W, Open Side	69
#6: GT212 Mid Tower, 250W, Open Side, 2 Fans, White	105
#7: GT210 Mid Tower, 250W, Black	109
#8: Full Tower, 250W, 2 Fans	85
#9: CF-8501S Full Tower, 250W, Open Side	89
#10: KS-A5561 Full Tower, 250W, Slide Open, 2 Fans	115
#11: Full Tower, 300W, w. Wheels	149
#12: GT312 Full Tower, 300W, Open Side, 2 Fans, 8 Bay Slots, PS/2 Power, White	149
#15: Mid Tower w. IDE Mobile Rack	65
#16: 701D Mini Tower w. 230W Power	39
#17: 668A Full Tower w. 250W Power	69
#18: 668B Mid Tower w. 250W Power	55
#19: 668C Mini Tower w. 230W Power	39
#20: Mini Tower w. 230W Power	47
#A1: ATX CF-8502A Mid Tower, 235W, Open Side	79
#A2: ATX Mini-mid Tower, 230W Power	79
#A5: ATX CF-8501S Full Tower, 250W, Open Side	99
#A6: ATX GT-232XC Mid Tower, 235W	119
#A7: ATX GT-312 Full Tower, 250W	145
#A8: ATX PC-268A Desktop, 235W	75
#A9: ATX PC-968A Mid Tower, 235W	79
#A10: ATX PC-768A Full Tower, 250W	99
#A12: ATX 668B Mid Tower, 230W	79
#A13: ATX 668A Full Tower, 250W	95
#A14: ATX IWQ500 Full Tower, 235W	99
#A15: ATX Mid Tower, 230W	85
#A16: ATX Mid Tower, 230W	65

HDD EXTERNAL CASING:

CF731: 1 half ht SCSI, 50W	49
CF751: 1 half ht SCSI, 50W	51
CF732: 1 half ht SCSI-2, 50W	65
CF733: 1 half ht SCSI-3, 50W	69
CF7021: 2 half ht SCSI, 80W	75
CF7022: 2 half ht SCSI-2, 80W	99
CF7023: 2 half ht SCSI-3, 80W	105
CF7041: 4 half ht SCSI, 200W	99
CF7042: 4 half ht SCSI-2, 200W	125
CF7043: 4 half ht SCSI-3, 200W	129
CF7081: 8 half ht SCSI, 250W	195
CF7083: 8 half ht SCSI-3, 250W	249
CFCDO: CD-R IDE Parallel, 50W	59
1 half ht IDE Parallel 3.5", 50W	65

ANTEC

KS-011+RPP3002: 19 Bay Server (9 front, 10 int. bay) 300W, Hot Swap + Redundant P/S, 2 Fans	529
KS-011+RPT600: 19 Bay File Server (9 front, 10 int. bay) 300W, Redundant Vertical AT P/S, 2 Fans	459

SUPERMICRO

750A: Full Tower, 300W Power, ATX	195
750S: Full Tower w. 300W / 400W	189/225

OTHERS

19" Industrial Rackmount Chassis (support standard AT motherboard)	255
19" Industrial Rackmount Chassis for ATX, 250W	339

3. CONTROLLERS

adaptec

2940 SCSI PCI w. Kit oem	159
2940U SCSI PCI w. Kit oem / reg	169/229
2940UW Ultra-Wide-SCSI PCI Kit oem / reg	209/279
AAA-131 Raid Single Channel / CA	435/525
AAA-133 Raid 3 Channel	689
AHA3940 PCI Multi-Channel SCSI	399
AHA3940UW Ultra-Wide-SCSI w. Kit	479
APA1460A Slim SCSI Kit	149
APA1460B Slim PCMICA SCSI	165
ASW-EZ SCSI 3.1 for Dos & Win	59
ASW-EZ SCSI 4.0 for Win'95	69

ASUS

AS300UW SCSI PCI & 16-bit audio adapter	215
SC200 SCSI-2 PCI w. NCR chips	79

COREL

Corel SCSI Software v2.5	85

DIAMOND

Fire Port 40 Ultra SCSI PCI oem / reg	155/179

initio

SALE

INI-9100 SCSI PCI PnP	69
INI-9100U SCSI PCI Kit, 20Mb/s	**(129)*
INI-9100UW Ultra-Wide SCSI PCI Kit	**(169)*
INI-9200U Dual SCSI PCI	**(215)*
INI-9200UW Dual Ultra-Wide SCSI PCI	**(259)*
INI-9520U Dual SCSI + Ether Combo	**(285)*
INI-9520UW Dual + Ether Combo	**(335)*
INI-9400U Quad SCSI Ultra	**(395)*
INI-9400UW Quad Ultra-Wide SCSI	**(459)*

KOUWELL

KW557A IDE/ 1.44/ 2S (FIFD)/ ECP/ 1G	22

LDP (LOMAS DATA)

Fast SCSI-2 PCI 10Mb/s	**(99)*
Fast PCI 20, Ultra-Wide-SCSI 40Mb/s	**(195)*

NEW MEDIA

Basic SCSI DB25 PCMCIA	99
Bustoaster SCSI-2 PCMCIA	165

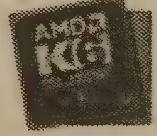
SIIG (5YR. WARRANTY)

CN2419 EIDE/ 4HD/ 2FD/ 16-bit ISA	49
CN2420 EIDE/ 4HD/ 16-bit ISA	39
CN2424 EIDE/ 4HD/ 2FD/ 2S 1P 1G/ 16550/ IEEE1284	62

OTHERS

PROMISE EIDE 2300+ IDE/ 4HD/ 2S 1P/ 16550	59

4. CPU



AMD

AMD-K5-166	99
AMD-K6-200	159
- Boxed version w. 3 yr warranty	169
AMD-K6-233	179
- Boxed version w. 3 yr warranty	189

Cyrix (W. FAN)

6x86MX-P166 / boxed version	109/139
6x86MX-P200 / boxed version	139/189

intel.

MMX-166Mhz Pentium® / w. 3 yr. warranty	115/119
MMX-200Mhz Pentium® / w. 3 yr. warranty	139/155
MMX-233Mhz Pentium® / w. 3 yr. warranty	219/229
P54C-133Mhz Pentium®	95
P54C-150Mhz Pentium®	105
P54C-166Mhz Pentium®	109
P54C-200Mhz Pentium®	179
Pentium® Pro 150Mhz w. fan & 256k	189
Pentium® Pro 180Mhz w. fan & 256k	209
Pentium® Pro 200Mhz w. fan & 256k	519
Pentium® II 233Mhz w. fan / 3 yr warranty	315/315
Pentium® II 266Mhz w. fan / 3 yr warranty	425/425
Pentium® II 300Mhz w. fan & 3 yr warranty	595

OverDrive®:

Pentium® 133Mhz (fr P-60 / 66)	199
Pentium® MMX166Mhz (fr P-100 / 133)	215
Pentium® MMX180Mhz (fr P-90 / 120)	235
Pentium® MMX200Mhz (fr P-100/ 133/ 166)	315

OTHERS

Cooling Fan for 486 CPU	4.95
Cooling Fan for Pentium® processor	6.95

Edimax CPU Switch:

- CAS221 VGA, Keyboard, Mouse for 2PC	145
- CAS421 for 4PC (AT & PS/2)	215
- CAS601 for 6PC AT only / PS/2	235/236

5. DIGITIZER

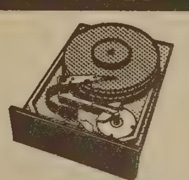
SUMMASKETCH (CALCOMP)

III 12x12, 4 or 6 button Cursor or Stylus	**(249)*
III Pro 12x18, 4 button Cursor	465

WACOM

Art Pad II 4x5, w. Erasing Ultra Pen, PC	**(129)*
Art Pad II 4x5, w. Erasing Ultra Pen, MAC	139
Art Z II 6x8, w. Erasing Ultra Pen, PC	**(299)*
Art Z II 6x8, w. Fractal Expression, PC	**(359)*
Art Z II 6x8, w. Painter 5.0, PC	385
Art Z II 6x8, for MAC	309
Art Z II 12x12, w. Erasing Ultra Pen, PC	415
Art Z II 12x12, for MAC	429
Art Z II 12x12, w. Fractal Expression	479
Art Z II 12x18, w. Erasing Ultra Pen, PC	685
CT-0405 Pen Partner w. Corel Print & Photohouse	95
UC-520 4-button Pack	45
UD-2 MAC Kit	45
UP-201 Pressure Sensitive Stylus	49.95
UP-701E Erasing Ultra Pen	64.95
UP-801EW Erasing Ultra Pen	69.95

6. DRIVES



One Year Warranty on All Disk Drives

FLOPPY DRIVE:

MITSUBISHI

LS-120 120MB w. cartridge, 3.5"	135

TEAC

1.44MB 3.5" / w. frame	25/29

HARD DRIVE:

FUJITSU

M3026TU 2.6GB 10ms 128k IDE Ultra-DMA	159
M3032TU 3.2GB 10ms 128k IDE Ultra-DMA	179
M3043TU 4.3GB 10ms 128k IDE Ultra-DMA	215
M3052TU 5.2GB 10ms 128k IDE Ultra-DMA	259

IBM.

DCAS-32160 2GB 8.5ms UW-SCSI, 5400rpm	**(189)*
DCAS-34330 4.3GB 8.5ms UW-SCSI, 5400rpm	**(295)*

KINGSTON

PCMCIA 260MB IDE, type III	375
PCMCIA 340MB IDE, type III	445

MAXTOR

8.4GB 10ms IDE Ultra-DMA	355

Quantum

SALE

(limit 1 per customer, while supplies last)
ST32100SE-S 2GB 10ms 128k SCSI-2 209

ST32100SE-A 2.1GB 9.5ms 128k IDE Ultra-DMA	149
ST33200SE-A 3.2GB 9.5ms 128k IDE Ultra-DMA	189
ST34300SE-A 4.3GB 9.5ms 128k IDE Ultra-DMA	219
ST36400SE-A 6.4GB 9.5ms 128k IDE, 5400rpm	299
Atlas-2 2275S 2.1GB Ultra-Wide SCSI	199
QM33240ST-S 3.2GB 10ms 128k Ultra SCSI	255
QM34320ST-S 4.3GB 10ms 128k Ultra SCSI	295
Atlas-2 4550W 4.5GB 8ms 512k UW-SCSI	499
VK45W 4.5GB Wide SCSI (w. 5 yr warranty)	**(419)*
ST36400SE-S 6.4GB 10ms 128k Ultra SCSI	389

SAMSUNG

WU32543A 2.5GB 10ms 128k IDE Ultra-DMA	145
VG33402A 3.4GB 10ms 128k IDE DMA	175

Seagate

ST-32122A 2.1GB IDE DMA	145

* 5 year warranty for below drives *

ST-32272N 2.2GB 9ms Ultra SCSI	349
ST-32272W 2.2GB 9ms Ultra-Wide SCSI	379
ST-34501W 4.5GB UW-SCSI, 10,000rpm	669
ST-34572N 4.5GB 9ms Ultra SCSI	539

**(sale price) .... SPECIALS, limited to stock on hand*
Prices subject to change without notice.

http://www.centralcomputer.com for current prices & product catalog

ST-34572W 4.5GB 9ms Ultra-Wide SCSI	559
ST-19101N 9GB Ultra SCSI, 10,000rpm	1065
ST-19101W 9GB UW-SCSI, 10,000rpm	1095
ST-19171N 9GB Ultra SCSI	799
ST-19171W 9GB Ultra-Wide SCSI	799

TOSHIBA

MK2103MAV 2GB 13ms 128k IDE 2.5"	199
MK3205MAV 3.2GB 13ms 128k IDE 2.5"	299

WESTERN DIGITAL

SALE

(limit 1 per customer, while supplies last)

WD-23200 3.2GB 11ms 128k IDE	**175**

WD-12100 2.1GB 12ms 128k IDE Ultra-DMA	149
WDC-AC24300 4.3GB 9.5ms IDE Ultra-DMA	235
WDC-AC35100 5.1GB 11ms IDE Ultra-DMA	249
WDC-AC36400 6.4GB 11ms IDE Ultra-DMA	289

* 5 yr warranty for below drives *

WDC-E2170 2.17GB Ultra SCSI	349
WDC-E2170 2.17GB Ultra-Wide SCSI	379
WDC-E4360 4.3GB Ultra SCSI	**(499)*
WDC-E4360 4.3GB Ultra-Wide SCSI	**(515)*

REMOVABLE DRIVE:

iomega

Jaz Disk 1GB - Single / 3-pk / 5-pk	79/235/389
Jaz Drive 1GB SCSI Int / Ext	**(275/369)*
Jaz Traveller	45
Zip Disk 100MB - Single / 3-pk	12.50/36
- 6-pk / 10-pk	70/*(115)
Zip Drive 100MB Parallel	**(135)*
Zip Drive 100MB IDE Int oem	95
Zip Drive 100MB SCSI Int oem / reg	125/145
Zip Drive 100MB SCSI Ext	**(135)*
Zip Drive 100 Plus (SCSI & Parallel)	**(185)*
Zip Zoom SCSI Accelerator Card for Ext	46

SYQUEST

Sparq 1GB IDE Int	199
SyJet 1.5GB IDE Int	279
SyJet 1.5GB Parallel	289
SyJet 1.5GB SCSI Int / Ext	279/289
1.5GB SyJet Cartridge	65

7. I/O CARD

ADDONICS (QUICKPATH)

Flexport 22EX 2S/ 2P/ 16650	95
Flexport 42 4S/ 2P/ Bi-Dir/ 16550	95

KOUWELL

KW508-E Single Parallel Port	12
KW524-J 2S/ 2P/ 16550	23

SIIG

Cyberpro 2S Highspeed w. 16650	55
Cyberpro 4S Highspeed w. 16650	85
IO1809 2S/ 1P/ 16550	39
IEEE 1284 EPP/ ECP/ Parallel Port	32

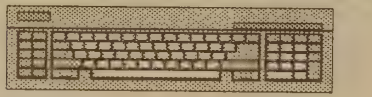
SOCKET COMMUNICATION

PCMCIA Serial I/O 16550	149
PCMCIA Dual Serial I/O	215

STB 4-COM

4S/ 16-bit/ 16550/ support Com 1-8, IRQ	99

8. KEYBOARD



FOCUS

FK2001 104 for Win'95	26
FK7200 104 Trackball	27
FK8200 124 Key w. calculator	42
FK9200W 124 Key w. trackball & calculator	45

KEYTRONIC

104 Key - White / Black	*(24)/39
104 Key PS/2	26
104 Key PS/2 & AT Combo	28
104 Key Tag Along w. Mouse - White / Black	28/29
LT Touch Pad	85
Wireless IR Classic 104	58
Wireless IR Touchpad / Trackball	75/74

Microsoft

Natural Keyboard oem	**(49)*

QTRONIX

Scorpius 104+ for Win'95 - White / Black	23/24
Scorpius 105 / w. Trackball	32/49

SIIG

Minitouch 81 Key, Click	45
W104 for Win'95	29
Wintouch 104	35

OTHERS

ANTEC 104 Key - White / Black	18/39
BTC 5100 Mini 80 Key	29
EZ Key Natural Keyboard	28.50
EZ 1000 Smart Keyboard	29
EZ 9720 3D Smart Keyboard	39
MAXI 101 Key	25
MITSUMI 104 Model ZW	**(14.50)*

9. MEMORY

DIMM

4 x 72 - 60ns, 168-pin (32MB)	99
8 x 72 - 60ns, 168-pin (64MB)	219
16 x 72 - 60ns, 168-pin (128MB)	409
Unbuffer SDRAM 2 x 64 - 10ns (16MB)	39
Unbuffer SDRAM 4 x 64 - 10ns (32MB)	69
Unbuffer SDRAM 8 x 64 - 10ns (64MB)	189
Unbuffer SDRAM 16 x 64 - 10ns (128MB)	369
SDRAM w/ECC 8 x 72 - 10ns (64MB)	209
SDRAM w/ECC 16 x 72 - 10ns (128MB)	409

SIMM

4 x 9 - 60ns (4MB)	22
1 x 36 - 60ns, 72-pin (4MB)	22
2 x 36 - 60ns, 72-pin (8MB)	39
4 x 36 - 60ns, 72-pin (16MB)	59
8 x 36 - 60ns, 72-pin (32MB)	115
16 x 36 - 60ns, 72-pin (64MB)	229
EDO 1 x 32 - 60ns (4MB)	12
EDO 2 x 32 - 60ns (8MB)	19
EDO 4 x 32 - 60ns (16MB)	39
EDO 8 x 32 - 60ns (32MB)	69
Non Parity 1 x 32 - 60ns (4MB)	13
Non Parity 2 x 32 - 60ns (8MB)	19
Non Parity 4 x 32 - 60ns (16MB)	39
Non Parity 8 x 32 - 60ns (32MB)	69
Non Parity 16 x 32 - 60ns (64MB)	209

NOTEBOOK MEMORY (3RD PARTY)

for Acernote 374, Nuovo 971/ 972	
- 8MB / 16MB / 32MB	95/145/499
for AST Ascentia 950N	
- 8MB / 16MB	115/165
for AST Ascentia J30 / J50	
- 8MB / 16MB / 32MB	85/139/258
for AST Ascentia P30/ P50	
- 8MB / 16MB	115/175
for DEC HiNote 433/ 450/ 475	
- 4MB / 8MB / 16MB	59/89/145
for HP Omnibook 5000/ 5500	
- 8MB / 16MB / 32MB	109/165/285
for IBM Thinkpad 365X/ 560/ 760EX/ ED/ EL	
- 8MB / 16MB / 32MB	89/155/235
for NEC Versa 6030X/ H	
- 8MB / 16MB / 32MB	105/165/285
for Panasonic CF62EX/ 25EX	
- 8MB / 16MB / 32MB	95/145/499
for TI TravelMate 6020/ 6030	
- 8MB / 16MB	99/169
for Toshiba T1900/ T4500/ T200CS	
- 4MB / 8MB / 16MB	89/109/165
for Toshiba T2100 series	
- 4MB / 8MB / 16MB / 24MB	65/89/135/195
for Toshiba Portege 610CT	
- 8MB / 16MB / 32MB	89/130/249
for Toshiba Portege 650/ 660CDT	
- 8MB / 16MB / 32MB	75/120/230
for Toshiba Tecra 700 - 32MB	**(235)*
for Toshiba Tecra 710/ 720/ 730CDT	
- 8MB / 16MB / 32MB	89/130/249
for Toshiba Satellite 430CDS/CDT/ 100/ 200CDS/CDT	
- 8MB / 16MB / 32MB	89/130/249

PCMCIA FLASH RAM CARD

4MB / 8MB / 10MB / 16MB / 20MB	125/165/179/225/259

PRINTER MEMORY

for HP Deskjet 500/ 500C	
- 256k	55
for HP Laser II / IID	
- 1MB / 2MB / 4MB	89/119/175
for HP Laser III / IIIP / IIID	
- 1MB / 2MB / 3MB / 4MB	75/105/135/165
for HP Laser 4L - 1MB	49
for HP Laser 4 / 4M / 4Si / 1200C	
- 4MB / 8MB	55/89
for HP Laser 4+ / 4V / 5 / 5N / 5P / 5Si / 6P / 1600C	
- 4MB / 8MB / 16MB / 32MB	49/69/105/199
for HP Laser 5L / 6LXi	
- 4MB / 8MB	79/109
for HP Laser 4000	
- 8MB / 16MB / 32MB	69/99/219
for Panasonic KX-P4450 - 1MB	85
for Panasonic KX-P4455 - 2MB	125
for Panasonic KX-P4400/ 5400	
- 2MB / 4MB	75/99

10. MODEMS & FAX

APOLLO

PCMCIA 56k w. AT&T chips	135

BOCA

SALE

(5-in-1 multimedia)

SE14SRS 14.4 Sound Expression Int	***(59)**
SE34SRS 28.8 Sound Expression Int	***(99)**

CREATIVE LABS

Modem Blaster Flash 56k Voice, Speaker Phone Int	125

DIAMOND

Supra Express 33.6 Fax PnP Int oem / reg	65/75
Supra Express 33.6 Fax PnP Ext	95
Supra Express 56k Fax PnP Int oem / reg	95/115
Supra Express 56k Fax PnP Ext	135

Hayes

Accura 33.6 Fax Int / Ext	**(125/149)*
Accura 56k Int / Ext	159/179
Optima 33.6 v.34 Fax Int / Ext	189/199
Optima 288 v.34 PCMCIA w. EZ jack	**(145)*
PC288HC 28.8 v.34 Fax 230K DTE Int	**(195)*
PC288MT 28.8 v.34 Fax Ext	**(149)*
PM288HC 28.8 v.34 Int	**(69)*
PM336HC Int / PM336MT Ext	95/115
PM56HC Int / PM56MT Ext	145/165

JATON

Explorer 56k X2 Fax/ Voice/ Speaker Phone Int	79

MEGAHERTZ

XJ1336 PCMCIA 33.6 Flash upgradable	**(175)*
XJ1560 PCMCIA 56k	**(209)*
XJ2560 PCMCIA 56k	**(158)*
XJ4336M PCMCIA 33.6 cellular w. Motorola cable	249
XJ4336 Cellular Capable 33.6	215
XJ5560 Cellular Capable 56k	**(219)* 235

MICROCOM

Deskporte 28.8P v.34 Fax Ext Parallel	**(125)*
Deskporte 28.8S v.34 Fax Ext	**(95)*
Officeporte 33.6 Voice ASVD Ext	155

MOTOROLA

SALE

BitSerfer #1749 Pro ISDN Multilink PPP Ext	***(299)**
BitSerfer #1750 ISA ISDN	***(199)**
BitSerfer #1994 Pro ISA for ISDN	***(298)**
BitSerfer Pro ISDN Easy Ext	***(275)**
Modem Serfer 33.6 Int / Ext	***(75/95)**
Modem Serfer 56k Int / Ext	***(94/109)**
Montana PCMCIA 33.6	***(165)**
- w. cellular cable	***(185)**
NT1D Network Terminator	**165**
Online Serfer 28.8 Fax Int / Ext	***(65/69)**
Premier 33.6 Int / Ext	***(149/169)**
Voice Serfer 33.6 Int / Ext	***(99/115)**

SIMPLY TECHNOLOGY

Communicator 56k PCMCIA Voice & Cellular	199

U.S. Robotics

SALE

Courier I-Modem #U w. Analog Int / Ext	239/285
Courier V. Everything 56k Int / Ext	**(215/245)*
#839 Sportster v.34 33.6 Fax Ext	**(139)*
#840 Sportster v.34 33.6 Fax Int oem / reg	**(89/95)*
#1171 Sportster v.34 33.6 Fax/ Voice/ Mail/ Speaker Phone Int oem / reg	99/115
#1172 Sportster v.34 33.6 Fax/ Voice/ Mail/ Speaker Phone Ext	149
#1784 Sportster 56k w. Voice Ext	189
#1785 Sportster 56k w. Voice Int oem / reg	125/169
#1786 Sportster 56k Ext	175
#1787 Sportster 56k Int oem / reg	145/155
#9040 Sportster ISDN 128k Int	185

WISECOM

SALE

(5 year warranty)

3314-JS3 33.6 Data Fax/ Voice Int (Rockwell)	**54**
3314-JS7 33.6 Data Fax/ Voice Int (Davidcom)	**49**
5614-JS3 56k Data Fax/ Voice Int (Rockwell)	**79**

XIRCOM

CM-33 33.6 Fax PCMCIA	**(159)*
CM-56G 56k PCMCIA Global Access	**(189)*

ZOOM (7 YR WARRANTY)

#2805 33.6 Fax Int	**(95)*
#2836 33.6 Fax Ext	**(105)*

11. MONITORS

Monitors on Display at our stores
for your comparison

Acer

78iE 17" 1600 x 1200 .26 NI	**(449)*

ARTMEDIA (SONY OEM)

TX1664 15" 1280 x 1024 .25 NI	**(289)*
TN1885 17" 1600 x 1280 .25 NI	689
TX1864 17" 1280 x 1024 .25 NI	549
TN2185T 20" 1600 x 1200 .30 NI	1169
GT-960T 20" 1600 x 1200 .25 NI	1389

DIGIVIEW

MVD1435 14" 1024 x 768 .28 NI	139
MVD1510 15" 1280 x 1024 .28 NI	195
MVD1707 17" 1280 x 1024 .28 NI	345
MVD1709D 17" 1600 x 1200 .25 NI	529

EIZO (NANAO)

FX-C5 17" 1280 x 1024 .26 NI	**(635)*
TX-C7S 17" 1600 x 1200 .25, Trinitron	845
TX-D7S 20" 1600 x 1280 .30 NI	1545
FX-E8 21" 1600 x 1280 .26 NI	2045

HITACHI SuperScan®

CM500U 15" Flat 1280 x 1024 .28 NI, 65hz	**(289)*
CM620U 17" Flat 1280 x 1024 .28 NI	545
CM630U 17" Flat 1600 x 1200 .28 NI	**(565)*
CM751 19" 1600 x 1200 .26 NI, 75hz	**(895)*
CM800U 21" 1600 x 1200 .22 NI	**(1249)*
CM802U 21" 1600 x 1200 .22 NI	*(1299)
CM803U 21" 1800 x 1440 .22 NI, 77hz	**(1545)*

IBM

G41T 14" Touch Screen Monitor .28	895
G50T 15" Touch Screen Monitor .28	985
G70 17" 1280 x 1024 .28, 60hz, FST	785
G70T 17" Touch Screen Monitor .28	1465
P70 17" 1600 x 1200 .26, 60hz	995
G200 20" 1600 x 1200 .28, 60hz	1385
P200 20" 1600 x 1280 .31, 60hz	1785
P201 20" 1600 x 1200 .26mm, 85hz	2445

iiyama

SALE

(3 Year warranty)

MF-8515G 15" 1280 x 1024 .28 NI	**285**
MF-8617E 17" 1600 x 1200 .26 NI, 69hz	**535**
MT-9017E 17" 1600 x 1200 .25 NI, 72hz	**625**
MF-8721 21" 1800 x 1440 .22 NI, 74hz	**1165**
MT-9021E 21" 1600 x 1280 .30 NI, 76hz	**1125**
MT-9221E 21" 1800 x 1440 .28 NI, 74hz	**1295**
S-901GT 19" 1600 x 1200 .26mm NI	**829**

IMPRESSION

3 Plus 14" 1024 x 768 .28 NI	165
5 Plus 15" 1280 x 1024 .28 NI	205
7 Plus 17" 1280 x 1024 .28 NI	385
Vienna Pro 17" 1600 x 1280 .25 NI	549

MAG

DX15T 15" 1280 x 1024 .25 NI	**(339)*
DJ702 17" 1280 x 1024 .26 NI, 65hz	**(549)*
DX700T 17" 1280 x 1024 .25 NI	**(599)*

NEC

A500 15" 1280 x 1024 .28 NI	**(275)*
E500 15" 1280 x 1024 .25 NI	345
M500 15" 1280 x 1024 .25 NI	**(349)*
A700 17" 1280 x 1024 .28 NI	**(485)*
E700 17" 1600 x 1280 .25 NI	669
M700 17" 1280 x 1024 .25 NI	**(759)*
P750 17" 1600 x 1200 .25 NI	785
E1100 21" 1600 x 1200 .28 NI	**(1125)*
P1150 21" 1600 x 1200 .25 NI, 75hz	**(1245)*
XM3750 37" 1024 x 768 Multimedia	5475

NOKIA

447L 17" 1024 x 768 .28 NI	**(549)*
447XAV 17" 1600 x 1280 .25 NI	715
447Xi 17" 1600 x 1280 .25 NI	**(689)*
445XAV 21" 1600 x 1280 .26 NI	1845
445Xi 21" 1600 x 1200 .26 NI, TCO95	**(1425)*
445XPro 21" 1800 x 1440 .21 MP	1549

OPTIQUEST

V655 15" 1280 x 1024 .28 NI, Digital	329
V775 17" 1600 x 1200 .26 NI	625
V95 19" 1600 x 1280 .26 NI	785
2082DC 20" 1600 x 1200 .28 NI	1199

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SAN FRANCISCO: 837 Howard Street TEL: (415) 495-5888
NEWARK: 5990 Mowry Avenue TEL: (510) 793-5555

PRINCETON

EO70 17" 1280 x 1024 .28 NI	435
EO75 17" 1600 x 1280 .26 NI	519
EO90 19" 1600 x 1200 .26 NI	769
Ultra 17+ 17" 1600 x 1280 .28 NI	**(559)*
AR2.7AV 29" 800 x 600, 38Khz max, video in w/ scan converter, speakers	919

RELISYS

RE451 14" 1024 x 768 .28 NI	139

SCEPTRE

(3 Year Warranty)

P401 14" 1024 x 768 .28 NI, Digital	**(155)*
P511 15" 1280 x 1024 .28 NI, Digital	**(205)*
P73 17" 1280 x 1024 .28 NI, Digital	365
P75A 17" 1600 x 1200 .26 NI, Digital	**(445)*

LCD PANEL: (1 yr warranty)

CD-111S 11.3" DSTN, 800 x 600, 64k color	875
CD-1112T 12.1" TFT, 800 x 600, 256k color	1725
FT15 15" TFT, 1024 x 768, color	2499

SONY

CPD-100ES 15" 1280 x 1024 .25 NI	339
CPD-100GS 15" 1280 x 1024 .25 NI	369
CPD-200ES 17" 1280 x 1024 .25 NI	625
CPD-200GS 17" 1280 x 1024 .25 NI	679
GDM-200PS 17" 1600 x 1280 .25 NI	829
GDM-400PS 19" 1600 x 1280 .25 NI	1165
20SEII 20" 1600 x 1200 .25 NI	**(1495)*
CPD-300SFT 20" 1280 x 1024 .30 NI, 80hz	**(1149)*
GDM-500PS 21" 1600 x 1200 .28 NI	1665

TVS

9" 1024 x 768 VGA Mono	119

ViewSonic

E641 14" 1024 x 768 .28 NI	185
E655 15" 1024 x 768 .28 NI	265
15GA 15" 1280 x 1024 .28 NI, Speaker Phone	**(365)*
15GS 15" 1024 x 768 .28 NI	295
EA771 17" 1280 x 1024 .28 NI PnP	489
G771 17" 1280 x 1024 .27 NI	455
P775 17" 1600 x 1280 .25 NI	**(559)*
PT770 17" 1600 x 1280 .25 NI	**(629)*
PT775 17" 1600 x 1280 .25 NI, Sonictron	689
G800 20" 1600 x 1280 .28 NI	**(999)*
G810 21" 1600 x 1280 .25 NI	1019
P810 21" 1600 x 1280 .25 NI	**(1119)*
P815 21" 1800 x 1440 .25 NI	**(1265)*
PT813 21" 1600 x 1280 .28 NI	**(1255)*
29GA 29" 1280 x 1024 .75 stripe pitch	**(2195)*

VIEWTRONIC

DX-1764Q 17" 1280 x 1024 .26 NI	419

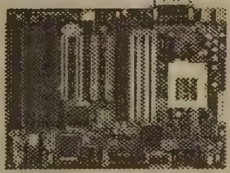
WYSE

WY-15E 15" 1280 x 1024 .28 NI	399
WY-17E 17" 1280 x 1024 .28 NI	645
WY-17PS 17" 1280 x 1024 .25 NI	825
WY-55 Terminal 14" Amber/ Green/ White	275 ea.
WY-60 Terminal 14" Amber/ Green/ White	385 ea.
WY-65 Terminal 14" Amber/ Green/ White	345 ea.
WY-150 Terminal 14" Amber/ Green/ White	325 ea.

ACCESSORIES:

VGA Monitor Splitter - 4 Port / 8 Port	155/195
VGA & Keyboard Switch 4 Way	19.95
VGA, KB & Mouse Switch - 2 Way/ 4 Way	24.95/34.95
VGA Switch 1 to 4 Way	13.95

12. MOTHERBOARDS



ABIT (W/O CPU)

LX-6 P-II, ATX, 440LX chipset	145
PD5N 512k, SIS chipset	85
PX-5 512k, 430TX chipset	**(85)*
TX-5 512k, 430TX chipset	105

ASUS (W/O CPU)

P2L97 ATX, 440LX chipset	**(175)*
P2L97S ATX, 440LX chipset, SCSI	**(255)*
P2L97DS ATX, Dual, 440LX chipset, SCSI	419
TX97 512k, TX chipset, Dimm	139
TX97E 512k, TX chipset, 4 Simm/ 2 Dimm	139
TX97X ATX, 512k, TX chipset, Dimm	139
TX97XE ATX, 512k, 4 Simm/ 2 Dimm	145
- TX97XE w. Sound	175
TXP4 512k, TX chipset, AT	119
XP55T2P4 ATX, P-200, PCI, 512k Burst SRAM	135

DFI (W/O CPU)

586ITB P-233, 512k, 430TX chipset	105
586ITX ATX, P-233, 512k, 430TX chipset	114
686IPK ATX, P-II, 440FX, ECC & Parity	165
P2XLX ATX, PII-233, 440LX, 1 AGP	185

FIC (W/O CPU)

KL-6011 Single P-II, 440LX, w. ATI AGP	299
PA-2007 P-200, 1MB, Via, AT, IDE I/O	117
PA-2011 ATX, P-200, 512k, Via	117
PA-2012 ATX, P-233, 1MB, Via	135
PT-2006 P-200, 512k, T3, IDE I/O	95
PT-2007 P-200, 512k, TX, AT, IDE I/O	115
PT-2011 ATX, P-200, 512k, TX, IDE I/O	119
VA-502 P-200, 512k, Via, IDE I/O	85

GIGABYTE (W/O CPU)

GA586TX2 512k, 430TX, IDE I/O	105
GA586ATX3 ATX, 512k, 430TX, IDE I/O	109
GA686LX ATX, 440LX, IDE I/O	159

intel (W/O CPU)

Atlanta P-II, 512k, 440LX / w. Sound	185/205
Atlanta P-II, 440LX, Sound, ATI Xpert@Work	349
DK440LX P-II, Dual, Wide SCSI, Sound, WS	519
R440LX P-II, Dual, Wide SCSI, Lan, VGA, Server	559

J-BOND (W/O CPU)

PCI500C-G2: P-200, 512k, 4PCI, EIDE, 430HX	**(109)*
PCI500-H4: P-266, w. AHA-2940UW SCSI	**(159)*
PCI500C-J: ATX, P-300, CPU Alarm	129
- w. AHA2940UW SCSI on board	259
PCI500CK: P-266, 512k, 430TX, USB	105
- w. AHA-2940U SCSI	175
- w. AHA-2940UW SCSI	229
PCI600A: ATX, Pro-200, 4PCI, IRDA, 440FX	189

M-TECH (W/O CPU)

Mustang R534E P-200, 512k, IDE I/O	109
M549 512k, Super TX chipset, 4 Simm/ Dimm	85
R539 512k, TX, 4 Simm/ 2 Dimm, IDE I/O	115
R557 ATX, 512k, TX, 4 Simm/ 2 Dimm	125

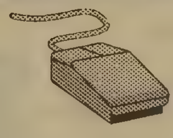
SUPERMICRO (W/O CPU)

P5MMA98 ATX, 512k, TX chipset	145
P5MMS98 512k, TX chipset	139
P6DLS P-II, Dual, 440LX, w. 2940UW SCSI	**(369)*
P6SKEII ATX, P-II, 440FX, EIDE I/O	145
P6SLA P-II, ATX, 440LX, EIDE I/O	185
P6SNS Pro-200, w. 2940UW SCSI	259

TYAN (W/O CPU)

1564D Tomcat IV 512k, Dual, 430HX chipset	199
1564S Tomcat IV 512k, 430HX chipset	159
1571S 512k, 430TX chipset	119
1573S ATX, 512k, 430TX chipset	119
1686S ATX, P-II, 440FX chipset	179
1692DL ATX, Tiger II Dual, 440LX	285
1692S ATX, Tiger II Single	185

13. MOUSE & JOYSTICK



CIRQUE (TOUCH PAD)

Easy Cat PnP	**(25) 29*
Power Cat w. Signature Pen	**(59) 65*
Smart Cat w. Scroll & Zoom	**(39) 44*

IBM

Black Scroll Mouse	68
White Scroll Point Mouse	59

KENSINGTON

Expert Bus 5.0	115
Expert Serial & Trackball 5.0	89
Mouse in a Box	**(26.95)*
Orbit Trackball	**(49)*
Thinking Mouse Serial & PS/2	**(55)*

LOGITECH

Coredless Mouseman Pro	57
First Mouse Plus oem	**(24)*
Mouseman Bus / Plus	64/52
Mouseman Sensa	29
Serial Combo PC & PS/2 oem / reg	24/45
Trackman Live Cordless	125
Trackman Marble for Win'95 oem / reg	59/82
Trackman Marble FX	89

Microsoft

Bus 2.0 400dpi w. Bus Card oem / 5-pk	65/325
Combo Mouse (Serial + PS/2)	49.95
Easyball w. Freddi Fish CD	49.95
Home Mouse Serial	29
IntelliMouse 3.0 for Win'95	**(69)*
- oem Serial / oem PS/2	35/37
IntelliMouse Trackball	69.95
PS/2 2.0 oem	32
Serial 2.0 400dpi oem	27

MOUSE SYSTEMS

Mouse! Serial w. pad	19
Omni Mouse	26
PC Mouse III (3-button optical)	49.50
PC Trackball II	**(35)*
ProAgio (5-button serial)	39
Serial Bus Card (9IRQS), 5 Com	29

NEC

King Mouse 2-button	**(16.50)*

QTRONIX

Libra 90 Pro Trackball	35
Opto-Mechanical Mouse	7.50

OTHERS

AGILER ATB-610 Serial Trackball	19.95
AGILER Bus	23
ANCER 3-button, Black	19
ANTEC Serial	**(6.95)*
GENIUS Netmouse Serial / PS/2	19.95/19.95
GENIUS Netmouse Combo (Serial + PS/2)	24.95

JOYSTICK:

C.H. PRODUCTS

Flight Stick Pro	53
Pro Pedals	79.95
Virtual Pilot / Pro (Yoke)	68/75

LOGITECH

Wingman Extreme oem / reg	*(34)/45

Microsoft

Side Winder 1.0	29
- Side Winder 3D Pro	44
Side Winder Force Feedback	145
Side Winder Gamepad	39
Side Winder Precision Pro	68

QUICKSHOT

QS123A Warrior 5	12
QS206 Sky Master	27
QS216 Strato Warrior	25
QS217 Command Pad	12

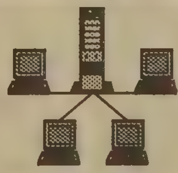
THRUSTMASTER

ACM Game Card	29.95
F-16 FLCS / F-16 TQS	125/129
F-22 Pro Flight Control	139
Flight Control System MKII	65
Flight Control System Pro	108
Formula T2	119
Grandprix Driving Control	53
Nascar Pro Racing Control	124
Phazer Pad	**(39.95)*
Rudder Control	109
Weapon Control MKII	109
Wizzard (pinball controller + Royal Flush CD)	39
X-Fighter Flight Control	**(45)*
XL Action	28

OTHERS

Cobra (Mouse Systems)	**(9.95)*
Cyclone 3D	38
PC Analog Pro	19.95
PC Gamepad / Pro (10-button)	17/29
Batman Logo Mouse Pad	5.49
Gotham City Mouse Pad	6.99
Looney Tunes Pad w. Screen Saver	9.95
Superman / Logo Mouse Pad	6.99/5.49
Walt Disney Mouse Pad	4.99 ea.
Warner Brothers Mouse Pad	5.99 ea.

14. NETWORK



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Networking Partner

3C250B 100BaseTX Fast 12 Port Hub	**(845)*
3C509B TPO (RJ45 only) oem	**(49)*
3C509B-TPC TP+BNC oem / reg	*(64)/115
3C509B Combo / 5-pk	119/499
3C515-TX Fast 10/100 ISA oem / reg	129/145
3C562D PC Card Modem 33.6 + Lan TPO	**(269)*
3C562D PC Card Modem 33.6 + Lan Combo	**(299)*
3C575-TX 10/100 Card Bus PC Card	155
3C589D PCMCIA TP / 5-pk	*(139)/629
3C589D PCMCIA Combo / 5-pk	*(179)/849
3C597-TX EISA 10/100 TP	239
3C882 Impact IQ ISDN v.32bis Ext	**(215)*
3C892 Office Connect ISDN Net Modem	389
3C900 PCI TPO	105
3C900 PCI Combo oem / reg	*(85)/135
3C905-TX PCI 10/100 TP oem / reg	**(75/99)*
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3C16405 Port Switch 40 Hub 12 Port	**(395)*
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3C16700 TPO Office Connect Hub 8 Port	**(95)*
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3C16702 Office Connect Hub (16TP+BNC)	**(215)*
3C16703 Office Connect Hub 4TP Combo	**(89)*
3C16704 Office Connect Hub 4TP	**(69)*
3C16720 Office Connect 100 Hub 8 Port	**(445)*
3C16721 TP1200, 12 Port Fast Hub	**(495)*
3C16722 TP800, 8 Port Fast Hub	**(339)*
3C16723 TP400, 4 Port Fast Hub	**(189)*
3C16731 Office Connect Switch Hub 140M	**(665)*
3C16900A Switch 1000 24 Port 1 Fast	**(1595)*
3C16901A Switch 1000 12 Port 1 Fast	**(1195)*
3C16941A Switch 3000TX 8 of 100TX Port	**(1899)*
3C16942A Switch 3000 10/100 12 Port	**(1995)*

NETSERVER:

Netserver/8 Plus (#1877)	**(2795)*
Netserver/8 I-Modem Plus (#1879)	**(3495)*

adaptec

ANA-6901 PCI Full Duplex TP / Combo	**(85/99)*
ANA-6910TX PCI Fast-TX, 32-bit bus	175
ANA-6940TX PCI Quartet Fast (4UTP)	745
ATM 25.6Mb/s PCI - 128k / 512k	299/389
ATM 155Mb/s PCI 512k UTP	725

ALLIED TELESYN

3012TR Workgroup Hub (12TP+AUI+BNC)	165
3016TR Workgroup Hub (16TP+AUI+BNC)	189
3024TR Workgroup Hub (24TP+AUI+BNC)	249
MC12T UTP to BNC Conversion Kit	119
MR415T Mini Hub 4 Port	**(49) 54*
MR815T Mini Hub 8 Port	**(59) 64*
MR820TR Microhub 8 Port (8TP+AUI+BNC)	115
MX26F Fiber Optics Transceiver	145
MX40F Fiber Optics Transceiver	139

APOLLO

PCMCIA LAN Ethernet Adapter Combo	79

ARTISOFT

Extra Mail for Win'95	215
I-Share 2.5, 32 sessions (internet for Lantastic)	179
Lantastic 7.0 Single - CD / FD	85/89
Lantastic 7.0 10-user - CD / FD	355/359
Lantastic 7.0 1-user Add On	129
Lantastic 7.0 Starter Kit 2-user - CD+FD	249
Lantastic 7.0 Unlimited User - CD	725
Lantastic Power Suite:	
-1 / 5 / 10 / 25-user	149/599/1075/2295
- conversion for 1 / 5 / 10-user	89/345/595
NR-Pro 2000A Combo / 10-pk	85/755
NR-Pro 2000T TP / 10-pk	79/625

ASANTÉ

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10T Hub 24 Port	**(315)*
Fast 100BaseTX 12 Port Hub, stackable	**(1475)*
Fast 100BaseTX 12 Port Hub, PnP	**(1195)*
FriendlyNet 5 Port Hub TP	**(62)*
FriendlyNet 8 Port Hub TP	69

ASCEND

P15-1UBRI: ISDN	**(249)*
P25-1U-FX: ISDN Pipeline 25 + 4 Ethernet	**(435)*
P25-1U-PX: ISDN Pipeline 25 + IP Routing	**(499)*
P50-1UBRI: ISDN Pipeline 50	**(565)*
- w. Secure Firewall P50	add 335
P75-1UBRI: ISDN Pipeline 75	**(635)*
- w. Secure Firewall P75	add 335
P130-1UBRI-FT1: ISDN	**(1245)*
- w. Secure Firewall P130	add 645
Max 200+ (M201 - 4BRIU)	2975
Max 1800 (MX18 - 8BRIU)	**(4995)*

Bay Networks

Bay Stack 12 Port (CG1001E01)	599
Bay Stack 24 Port (CG1001E02)	975
Bay Stack 100BT 12 Port (AT2202001)	1595
Lattislink 2800A: 16TP + 1AUI	559
Lattihub 2803: 16TP + 1AUI, stackable	599

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Extensa 391C: P-133MMX, 16MB, 1.6GB, 20X CD, 33.6 modem, 12.1" DSTN, Win'95 1139
Extensa 392C: P-150MMX, 16MB, 2.1GB, 20X CD, 33.6 modem, 12.1" DSTN, Win'95 1329
TravelMate 7060: P-166MMX, 32MB, 2.1GB, 10X CD, 12.1" TFT 3825

AST

Ascentia M5160T: P-166MMX, 32MB, 1.6GB, 20X CD, 12.1" TFT, Win'95 2569
Ascentia M5200T: P-200MMX, 32MB, 2.1GB, 20X CD, 12.1" TFT, Win'95 2965

ASUS

P6300: P-233MMX, 32MB SDRAM, 2GB, 512k, 20X CD, 13.3" TFT, 2MB XGA 3425

CHEM USA

Chembook 2600:
- P-150, 16MB, 1.4GB, 14X CD, 12.1" DSTN, Win'95, Ni-MH 1525
- P-166MMX, 16MB, 1.4GB, 14X CD, 12.1" TFT, Win'95, Ni-MH 1875
- P-200MMX, 32MB, 2.1GB, 14X CD, 12.1" TFT, Win'95, Li-Ion 2125

Chembook 2700: P-233MMX, 32MB, 2.1GB, 20X CD, 14.2" TFT, 2MB Video, Win'95, Li-Ion 2795
Chembook 3300: 32MB, 2.1GB, 20X, 12.1" TFT, Win'95, - w. P-166MMX 1645
- w. P-200MMX / P-233MMX 1729/1819

Chembook 6000: IMM P-233MMX, 16MB SDRAM, 2.1GB, 20X CD, 13.3" TFT, XGA, Win'95 3450
Chembook 6800XL: P-200MMX, 32MB, 1.4GB, 20X CD, 14.1" TFT, 4MB Video, Win'95, Li-Ion 2645
Chembook 9750:
- P-166MMX, 16MB, 1.4GB, 14X CD, 12.1" TFT, Win'95, Li-Ion 1925
- P-200MMX, 32MB, 1.4GB, 16X CD, 13.3" TFT, Win'95, Li-Ion 2259

Chembook 9780:
- Tillamook Ready P-166MMX, 16MB SDRAM, 2.1GB, 20X CD, 12.1" TFT, SVGA, Win'95, Li-Ion 2095
- Tillamook Ready P-233MMX, 32MB SDRAM, 2.1GB, 20X CD, 14.1" TFT, XGA, Win'95, Li-Ion 3399

DFI

6600:
- P-150, 16MB, 1.4GB, 10X CD, 12.1" DSTN, Win'95, Carrying Bag 1699
- P-166MMX, 16MB, 2.1GB, 20X CD, 11.3" TFT, Win'95 2015

*8120: P-200MMX, 32MB, 2.1GB, 20X CD, 33.6 modem, 12.1" TFT, Video Capture, Win'95, Li-Ion, Targus Bag .... *(2269)*
8241: P-200MMX, 32MB, 2.1GB, 20X CD, 33.6 modem, 14.2" TFT, Win'95, Li-Ion, Targus Bag 2919

DIGITAL EQUIPMENT (DEC)

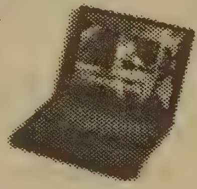
HiNote VP567: P-133MMX, 16MB, 1.4GB, 12X CD, 12.1" TFT, Win'95........2475
HiNote VP575: P-166MMX, 16MB, 2.1GB, 12X CD, 12.1" TFT, Win'95........2950
HiNote VP735: P-233MMX, 32MB, 4GB, 20X CD, 13.3" TFT, XGS, Win NT 4.0 4085
HiNote Ultra 2000 GTX/5166M: P-166MMX, 32MB, 3.2GB, 20X CD, 33.6 modem, 14.1" TFT, XGA, Win'95 (#FRPF4WJAA) 3950

FUJITSU

Lifebook 535TX: P-133MMX, 16MB, 2GB, 20X CD, 33.6 modem, 12.1" TFT 1685
Lifebook 555TX: P-150MMX, 16MB, 2GB, 10X CD, 33.6 modem, 12.1" TFT 2225
Lifebook 565TX: P-166MMX, 32MB, 2GB, 20X CD, 33.6 modem, 12.1" TFT 2299
Lifebook 585TX: P-233MMX, 32MB, 4GB, 20X CD, 33.6 modem, 12.1" TFT, Win'95 3395
Lifebook 635TX: Ultra Thin, P-133MMX, 16MB, 2GB, 33.6 modem, 12.1" TFT 2500
*Lifebook 655TX: P-150MMX, 16MB, 1.3GB, 33.6 modem, 12.1" TFT .... *(2295)*
Lifebook 735DX: P-133MMX, 16MB, 1.6GB, 20X CD, 56k modem, 12.1" DSTN, Win'95 1400
Lifebook 755TX: P-150MMX, 32MB, 2GB, 20X CD, 56k modem, 12.1" TFT, Win'95 1855
Lifebook 765TX: P-166MMX, 32MB, 3.2GB, 20X CD, 56k modem, 12.1" TFT, Win'95 2035
Lifebook 985TX: P-233MMX, 32MB, 5GB, 20X CD, 56k modem, 13.3" TFT, DSVD, Win'95 4750

HITACHI

*** FREE 16MB + NiMH Battery - call for details ***



Traveller: 2.75lbs, P-133MMX, 24MB, 1GB, 8.4" TFT, Win'95 2455
VisionBook Elite: P-166MMX, 16MB, 2.1GB, 10X CD, 56k modem, 13.3" TFT (free Printer while supplies last, ask for details) 2665
VisionBook Plus: P-150MMX, 16MB, 2.1GB, 20X CD, 33.6 modem, 12.1" TFT, Win'95 1725
VisionBook Plus: P-166MMX, 16MB, 2.1GB, 10X CD, 33.6 modem, 12.1" TFT, Win'95 1899
VisionBook Pro: P-133MMX, 16MB, 1.4GB, 10X CD, 56k modem, 12.1" TFT, 10BT, Win'95 1825
VisionBook Pro: P-166MMX, 32MB, 3GB, 10X CD, 56k modem, 10BT, 13.3" TFT, Win'95 2835
VisionBook Pro: P-233, 32MB, 3.2GB, 20X CD, 56k modem, 13.3" TFT, Win'95 4135

HEWLETT PACKARD

Authorized Reseller

NOTEBOOK:

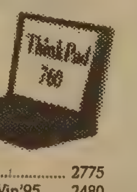
Omnibook 800CT/166MMX (F1360A): 16MB, 2GB, 10.4" TFT 3570
Omnibook 2000CT/133MMX (F1373A): 16MB, 1.86GB, 12.1" TFT 1739
Omnibook 3000CTX/200MMX (F1391A): 16MB, 2.1GB, 13.3" TFT, XGA, Win'95, Li-Ion ... 3105
Omnibook 3000CTX/233MMX (F1392A): 16MB, 4GB, 13.3" TFT, XGA, Win'95, Li-Ion 3555
Upgrades for 3000CTX:
- 16MB module (F1363A) 140
- 20X CD Rom (F1387A) 285
- Port Replicator (F1381A) 230
- Zip Drive Internal (F1388A) 285

Omnibook 5700CT/150MMX (F1352A): 16MB, 2GB, 12.1" TFT 2075
Omnibook 5700CT/166MMX (F1353A): 16MB, 2GB, 12.1" TFT 2495

PALMTOP:

*320LX 640x240 4MB (F1221A) .... *(435)*
Accessories:
(F1218A) AC Adapter 29.99
(F1223A) Synch Cable 16
(F1224A) Spare Cable 32
(F1225A) Stylus 12
(F1227A) Leather Case 68
2MB CF Card / w. Adapter 79/99
4MB CF Card / w. Adapter 119/149
*360LX 8MB (F1238A) .... *(625)*
620LX Color (F1250A) 799

IBM



TP380D: P-150MMX, 16MB, 2.1GB, 8X CD, 12.1" TFT, Win'95.......2125
TP380E: P-150MMX, 16MB, 2.1GB, 12.1' FRSTN, Win'95, Ni-MH.........1515
TP380ED: P-166MMX, 16MB, 3GB, 8X CD, 12.1" TFT, Win'95 (#2635-6AU) 2775
TP560: P-133, 8MB, 2.1GB, 12.1" TFT, Win'95 2480
*TP560: P-133, 8MB, 2.1GB, 11.3" DSTN, Win'95, Case .... *(1599)*
TP560E: P-166MMX, 16MB, 2.1GB, 12.1" TFT, Win'95 (#2640-40U) 2975
TP560X: P-233MMX, 32MB, 4GB, 12.1" TFT 3669
TP765D: P-166MMX, 32MB, 3GB, 8X CD, 28.8 modem, 13.3" TFT, Win'95 4065
TP770: P-200MMX, 32MB, 3.2GB, 13.3" TFT, XGA, Win'95 (#9548-40U) 3769

POC

POC-Note 523: P-233, 32MB, 3GB, 13.3" TFT 2795

PSION

Palmtop Series 5 w. 4MB / 8MB 529/635

SCEPTRE

S3920: P-150, 8MB, 1.3GB, 11.3" DSTN, Win'95 . 1289
S4500: P-166MMX, 16MB, 2GB, 12X CD, 33.6 modem, 12.1" TFT, Li-Ion 1889
S5500: MMO Tillamook PII-233, 16MB, 3GB, 20X CD, 13.3" TFT 2929

TATUNG

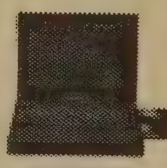
TNB-5600: P-166MMX, 32MB, 1.4GB, 33.6 modem, 12.1" TFT, Win'95, Li-Ion 2385

TOSHIBA

Libretto 50CT: P-75, 16MB, 772MB, 6.1" TFT 1319
Libretto 70CT: P-120, 16MB, 1.58GB, 6.1" TFT, Win'95, Li-Ion 1980
Portege 300CT: P-133MMX, 32MB, 1.5GB, 10X CD, 33.6 modem, 10.4" TFT, Win'95 2045
- Multimedia Port Replicator (for 300CT) 435

*Portege 660CDT: P-150, 16MB, 1.35GB, 10X CD, 28.8 modem, 11.3" TFT .... *(2035)*
Satellite 440CDX: P-133MMX, 16MB, 1.35GB, 10X CD, 12.1" FSCAN 1599
Satellite Pro 440CDT: P-133MMX, 16MB, 1.4GB, 10X CD, 12.1" TFT 1955
Satellite Pro 460CDT: P-166MMX, 32MB, 2.02GB, 10X CD, 33.6 modem, 12.1" TFT 2899
Satellite Pro 480CDT: P-233MMX, 32MB, 3.8GB, 10X CD, 33.6 modem, 12.1" TFT, Win'95 3585
Tecra 520CDT: P-166MMX, 32MB, 2GB, 10X CD, modem, 12.1" TFT, Win'95 2955
Tecra 530CDT: P-166MMX, 32MB, 2GB, 10X CD, modem, 12.1" TFT, XGA, Win'95 3145
Tecra 550CDT: P-266MMX, 32MB, 3.82GB, 20X CD, K56 modem, 12.1" TFT, XGA, Win'95 3925
Tecra 730XCDT: P-150MMX, 16MB, 2GB, 10X CD, 28.8 modem, 12.1" TFT, Win'95 2239
Tecra 740CDT: P-166MMX, 16MB, 3GB, 10X CD, 28.8 modem, 13.3" TFT 2939
Tecra 750CDM: P-233MMX, 32MB, 4.7GB, 20X CD, modem, 13.3" TFT, 4MB SGRAM, Win'95 4979
Tecra 750CDT: P-233MMX, 32MB, 4.7GB, 20X CD, modem, 13.3" TFT, XGA, Win'95 5199
Tecra 750DVD: P-233MMX, 32MB, 4.7GB, DVD Video, modem, 13.3" TFT, 4MB SGRAM, Win'95 5799

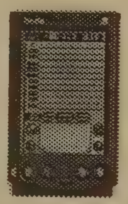
TWINHEAD



Slimnote 9T166CZ: P-166, 16MB, 1.4GB, 20X CD, 12.1" DSTN, Win'95, Ni-MH.........1535
Upgrades:- 16MB RAM 69
- fr. 1.4GB to 2.1GB (w. purchase of notebook) 50

Slimnote 9T166TZ: P-166MMX, 32MB, 2.1GB, 20X CD, 12.1" TFT, Win'95, Li-Ion 1849
Slimnote EX200TG: P-200, 32MB, 2.1GB, 20X CD, 1024x768, 13.3" TFT, 4MB VGA, Win'95, Li-Ion . 2600
Slimnote EX233TG: P-233, 32MB, 2.1GB, 20X CD, 1024x768, 13.3" TFT, 4MB VGA, Win'95, Li-Ion . 2825
Slimnote XL200TK: P-200, 32MB, 2.1GB, 20X CD, 14.2" TFT, XGA, Win'95 3055
Slimnote XL233TK: P-233, 32MB, 2.1GB, 20X CD, 14.2" TFT, XGA, Win'95 3169

U.S. Robotics



Palm Pilot Personal 512k........(235)*
Palm Pilot Professional 1MB........(339)*
Accessories:
(10101U) Slim Leather Case 25
(10108U) Pen 3-pk........7.99
(10109U) Cradle for Windows 29
(10117U) Belt Crib Case 24
(10264U) Deluxe Leather Case 58

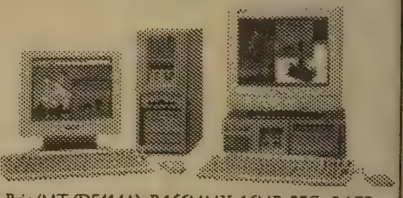
OTHERS

Kensington: Notebook Carrying Case 28.95
*Kensington: Saddle Bag - Brown .... *(59.95)*
Kensington: Wet Suite for Palmtop 11.50
*Kensington Port: MicroSaver .... *(35.95)*
Port: DEFCOM (motion sensor) 49
Targus: Leather Convertible Backpack (CLC-1) 89
*Targus: Notepad Case (CNO-1) .... *(24.95)*
Targus: Notepad Plus (CNP-1) 45
Targus: Player Pad Case (23125) 49.95
Targus: Universal Carrying Case (CUN-1) 65
Targus: Universal APS Case (CUN-1A) 66

Workstations / Servers

HEWLETT PACKARD

• MT=Tower •DT=Desktop



Brio/MT (D5414A): P-166MMX, 16MB, 256k, 2.1GB, 16X, 56k modem, S3 Trio64 V2 1MB, Win'95 1299
Brio/MT (D5415A): P-200MMX, 32MB, 256k, 2.1GB, 24X, 56k modem, S3 Trio64 V2 1MB, Win'95 1375
Brio/MT (D5416A): P-233MMX, 32MB, 256k, 6GB, 24X, 56k modem, Matrox 4MB, Win'95 1725
Brio/MT (D5557A): P-200MMX, 32MB, 256k, 2.1GB, 16X CD, S3 Trio64 V2 1MB, Win'95 1195
Kayak XA/DT (D3990A): P-166MMX, 16MB, 512k, 2.5GB EIDE, 8X CD EIDE, Audio, Matrox 2MB, 10/100 NIC, Win'95 1575
Kayak XA/MT (D3994N): P-166MMX, 32MB, 512k, 2.5GB, 8X CD, Audio, Matrox 2MB, 10/100 NIC, Win NT Workstation 4.0 1859
Kayak XU/MT (D4691N): PII-266, 32MB, 512k, 2.1GB SCSI, 24X CD, Audio, Matrox AGP 4MB, 10/100 NIC, Win NT Workstation 4.0 3200
Kayak XW/MT (D5505N): PII-266, 128MB, 512k, 4.5GB SCSI, 24X CD, Audio, Accel Eclipse 32MB, 10/100NIC, Win NT Workstation 4.0 6359

NETSERVERS:

E40/MT (D4938A): Pro-180, 16MB, 256k, 2.1GB SCSI, 16X CD, 10/100 NIC 1910
E45/MT (D4974A): PII-233, 32MB, 512k, 4.2GB SCSI, 24X CD, 10/100 NIC 1965
E45/MT (D4976A): PII-266, 32MB, 512k, 4.2GB SCSI, 24X CD, 10/100 NIC 2179
LD Pro/MT (D4962A): Pro-200, 32MB, 256k, 2.1GB SCSI Hot-Swap, 12X CD, 10/100 NIC 3135
LH Pro/MT (D4841B): Pro-200, 32MB, 256k,12X 5589
- (D3582C): w. three 2.1GB UW-SCSI Hot-Swap RAID 1 Disk Mirroring .... add 2307

IBM

PC300GL-63U: P200, 32MB, 2.5GB, Win'95 1340
PC300GL-86U: P-233MMX, 32MB, 2.5GB, Win'95 1225
PC300PL-12U: P-200MMX, 32MB, 4.2GB, 24X CD, Win'95 1485
PC300PL-16U: P-166MMX, 32MB, 2.5GB, Win'95 1265
PC300PL-50U: P-233MMX, 32MB, 4.3GB, 24X CD, Win NT 2015
PC300XL-10U: P-233MMX, 32MB, 2.5GB, 16X CD, Win NT 2045
MPro3D-Z6U IntelliStation: PII-266, 128MB, 512k, 16X CD, 4.3GB UW-SCSI, Audio, 10/100 NIC, Win NT ... 5599
ZPro3D-14U IntelliStation: Pro-200, 64MB, 256k, 16X CD, 4.5GB UW-SCSI, Audio, 10/100 NIC, Win NT ... 4125

SERVERS (w/o OS):

315-PSW: Pro-200, 32MB, 4.3GB UWSCSI 2675
325-PTW: PII-233, 32MB, 4.5GB UWSCSI 3685

TOSHIBA

• D=Desktop • M=Tower

Equium 5160D: P-166MMX, 32MB, 2GB, 12X CD, Win'95, 10/100 NIC 1275
Equium 5200D: P-200MMX, 32MB, 2.5GB, 12X CD, Win'95, 10/100 NIC 1379
Equium 6230D: PII-233, 32MB, 3GB, 24X CD, Win NT, 10/100 NIC 1810
Equium 6260M: PII-266, 32MB, 4GB, 16X CD, Win NT, 10/100 NIC 1999

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NetGear FE108: 8 Port 100 Hub, non-stackable	375
NetGear FE508: 8 Port Fast 100 Hub	549
NetGear FE516: 16 Port Fast 100 Hub	685

CASTELLE

FaxPress 1500N Ether 1 Line for NW & NT	1995
Office Connect CD Rom Server	569
Office Connect Ether 2P Printer Server	*(299)
Office Connect Ether 1 Line Fax Server	1195

CHEYENNE

Arc Serve 6.1 for Win - 5 to 25-user (netware)	435
Arc Serve 6.1 for Netware Enterprise	1095
Arc Serve 6.5 for Win NT 4.0 Single Server	415
Arc Serve 6.5 for Win NT 4.0 Enterprise	739
Arc Serve 6.5 for Win NT Workstation	99
Arc Serve for MAC - 5 / 20-user	159/309
Arc Solo Backup software for Dos / Win	119/118
Fax Server NLM 5.0:	
- 5 / 10 / 25-user	355/639/999
Innocular for Netware Server 4.0 Unlimited	*(535)
Innocular for Win'95 (Anti-Virus)	45
Innocular for Win NT Server	575
Innocular for Win NT add-on Arc Serve	*(279)
Innocular for Win NT Workstation Client	46

CISCO SYSTEMS

CPA-762 ISDN BRI w. NT1	525
CPA-1604 Bridge w. NT1	1295
CPA-2501 Router 1 Ethernet 2 Serial	1695
Catalyst WS-C1900: 24TP, 2BTX	*(1399)

CNET

2000E+ ISA Combo PnP	27
2000PNP ISA Combo	*(17)
2900PT PCI RJ45	*(15)
8800TPC Hub (8TP + BNC)	*(65)
8816TPC Hub (16TP + BNC)	*(125)

DANPEX

2900P2 PCI Combo	*(29)
3270 Emulation for PC / PS/2	175/195
5250 Emulation for PC / PS/2	199/235
6200P2 PCMCIA (type II), BNC + TP	79
9400P3 32-bit Combo PCI (DEC, full duplex)	*(45)
EN-500 5 Port Hub TP	*(39)
EN-1600 16 Port Hub R.M.	*(99)
EN-3200 32 Port Hub R.M.	255
ER-200 2 Port Repeater Coax	175
ER-400 4 Port Repeater Coax	249
ET-109 Converter (10BaseT to BaseFL)	169
ET-509 Translator (UTP to BNC)	109
ET-510 Translator (UTP to AUI)	107
FE-1000TX ISA 10/100BaseTX	*(48)
FE-1400TX PCI 10/100BaseTX	*(49)
Fast Ethernet Starter Kit (Fast 4 Port Hub + 2 PCI 100TX + 2 Cable cat. 5 TP 15')	*(195)

DIGI INTERNATIONAL

IMAC Bridge 1 ISDN	1165
IMAC Bridge Dual IMAC	1595
PC IMAC - ISA: Server, 1 ISDN	525
PC IMAC/ 4-1: Multi ISDN Expansion	665

HEWLETT PACKARD

J2550B Jet Direct TP	279
J2552B Jet Direct Combo	345
J2556B Jet Direct 10/100 Combo	*(385)
J2573A 10/100 VG Selectable ISA	169
J2585A 10/100 VG Selectable PCI	135
J2590A Jet DirectEX Plus 3 for 100VG	549
J2591A Jet DirectEX Plus Combo	*(235)
J2592A Jet Direct 150X TPO	165
J2593A Jet DirectEX Plus 3 Combo	385
J2610B Advanced Stack 8 Port Hub	245
J3110A Jet Direct TP for 4000	249
J3111A Jet Direct Combo for 4000	295
J3128A Advanced Ethernet 8E Hub	185
J3175A AdvanceStack Switch 208T	1045
J3200A AdvanceStack Switching 12 Port	425
J3201A (J3200A) + SMNP (J3210A)	*(499)
J3202A AdvanceStack Switching 24 Port	825
J3203A (J3202A) + SMNP (J3210A)	*(899)
J3245A Advancestack Switch 800T	2145

IBM.

Token Ring 16/4 Turbo ISA (72H3482)	245
Token Ring PCMCIA 16/4 Auto	325

intel.

SALE

EE110TX 8 Port Fast Hub, non-stackable	459
EE110TX 12 Port 10/100 Dual Speed Hub	*(999)
EE110TX 24 Port Dual Speed Hub	1685
EILA 8265 Pro/100 for EISA	*(199)
ES101-TX Switching Hub 10/100	*(2099)
EtherExpress Pro/10 Cards:	
- PCLA 8210 BNC+TP oem / reg / 5-pk	*(65/95/325)
- PCLA 8220 TP / 5-pk	*(89/315)
- PCLA 8205 Flash BNC+AUI+TP	135
- PCLA 8215 Flash BNC+TP	125
LANdesk Server Manager Pro (LDSMV251)	1185
LANdesk Virus Protect 4.0	945
LANdesk Workgroup Manager 25 Node	559
MBLA 1600 PCMCIA 10/100	*(149)
PCLA 2451 Netport Express Pro/100 Ext, 3 Port	335
PCLA 3151 Netport Express Pro Int	295
PCLA 4451 Netport Express Pro/100 Ext, 1 Port	235
PILA 8460 Pro/100+ / 5-pk	*(59)/359
PILA 8465B Pro/100 PCI TP oem	64
PILA 8480 Pro/100 Server Adapter	485

KINGSTON

Etherx 10BT PC Card	95
Etherx 10/100 Fast PCI	59

LANPRO

SALE

EN2000PXA Full Duplex Combo PnP	*(23)
EN5200PX PCI Combo	*(29)
EN9120TX 10/100TX PCI Card	*(35)
Fast 100 Hub 5 Port Stackable	*(225)
Fast 100 Hub 8 Port Desktop / Stackable	*(335/425)
Fast 100 Hub 12 Port	*(599)
Hub 5 Port (5TP)	*(55)
Hub 8 Port (8TP+BNC)	*(69)
Hub 16 Port (17TP+2AUI+2BNC)	*(155)
PS1000A Print Server Single Port	139
SD200 2 Port Easy Switch 10BT & 100TX	*(199)

LINKSYS

Fast 100TX 4 Port Hub Stackable	*(125)
Fast 100TX 8 Port Hub	359
Fast 100TX 16 Port Hub	575
Fast Switch 10/100TX 2 Port	275
Fast Switch 10BT & 100TX 5 Port	1195

MEGAHERTZ

XJ10BC PCMCIA Ethernet Combo	*(135)
XJ10BT PCMCIA Ethernet TP	*(115)
XJEM336C Modem 33.6 + LAN Combo	*(259)
XJEM336T Modem 33.6 + LAN TP	*(229)

MICRODYNE

EH800E 8 Port Hub	*(119)
EH1200E 12 Port Hub	*(175)
NE 10/100 - ISA / PCI	*(89/99)
NE2500 Combo PnP	*(35)
NE3210 32-bit Combo EISA	185
NE5500 32-bit Combo PCI	*(109)

MIROTEST

CD-Now for Netware - 25 / 50-user	489/695
Disc View Pro	265
Disc Serv (includes Disc View)	529

NOVELL.

SALE

Intra Netware Kit for Small Business (<25-user): Server + 5-user + 2 Danpex ISA Combo + 5 Port 10BT Hub	***(395)**
Intra Netware 4.11:	
- 5 / 10 / 25-user	*(695/1295/2095)
- 50 / 100 / 250-user	2895/3995/7295
- 500 / 1000-user	15995/30995
Intra Netware 4.11 Addition 10-user	895
Intra Netware for Small Business:	
- Server + 5 License	599
- 1 / 5-user License	59/225
Lan Workplace 5.0 - Single / 10-user	195/1295
Netware Connect - 2 / 8 / 32-Ports	355/1375/3895
Netware Management Agents 2.1	415
Netware NFS v1.2C	*(1850)
Netware NFS Service 2.1	2195
NFS Client for Lan Workplace	205
Unixware Personal Edition v2.01 - CD	*(99)
Unixware SDK v2.1 - CD	*(75)

PALINDROME

Network Archivist NLM 3.1A Backup	*(195)

SHIVA

LanRover/2E Plus 3.5 Async TP v.34	1695
NetModem/E 28.8 Ether BNC + TP	1295

SMC

SALE

Ether EZ TP (8416T) oem	*(58)
Elite Ultra 32 EISA Combo	*(195)
Etherpower PCI Combo (8432BT) oem	*(85)
Etherpower II 10/100 (9432TX) oem / 5-pk	*(65)/335
EZ Hub 100TX 8 Port	635
Tiger Hub 100TX 12 Port	1195
Tiger Hub 3212TC (12TP+BNC+AUI)	349
Tiger Hub 3314T 14 Port	*(459)

WISECOM (5 YR WARRANTY)

H008CAT 8 Port Hub (8TP+AUI+BNC)	*(69)
HI16CAT 16 Port (16TP+AUI+BNC)	*(139)
R310CT PCI 32-bit Combo PnP	*(22)
U210T NE2000 ISA Combo PnP	19

Xircom

CE3-10BC PCMCIA Combo	159
CE3-10BT TP, upgradable	135
CE3B-100BTX 10/100 PCMCIA	155
CEM33-BC 33.6 modem + LAN Combo	*(299)
CEM33-BT 33.6 modem + LAN TP	*(255)
CEM56-100BTX 56k modem + Fast LAN	*(299)
CEM56-100MD: with Mini Dock	*(305)
PE3-10BC Pocket Adapter Combo	*(279)
PE3-10BT Pocket Adapter TP	*(259)

CABLES & ACCESSORIES:

10BaseT, Cat. 3 plenum 1000'	145
Belden 8259, RG58 1000'	135
RG58 U - 500' / 1000'	49/79
RG58 A/U - 500' / 1000'	59/99
Twisted Pair 2-pair, PVC, Cat. 3 - 500' / 1000'	25/45
Twisted Pair 4-pair, PVC, Cat. 3	
- 200' / 500' / 1000'	25/45/69
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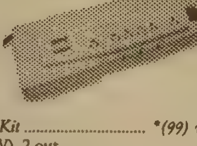
Custom-made Cables, Cross-Overs	**Call**

15. POWER SUPPLIES



APC

BF-250 Back-UPS Office Kit	*(99) 115
BK-280 Back-UPS (200W), 2 out	99
BK-400 Back-UPS (300W)	*(125)
BK-450 Back-UPS (325W), 4 out	155
BK-600 Back-UPS (425W), 4 out	225
BP-280 Back-UPS Pro PnP, 2 out	139
BP-420 Back-UPS Pro PnP, 4 out	225
BP-650 Back-UPS Pro PnP, 4 out	259
BP-1000 Backup Pro, 6 out	375
SU-420 Net	235
SU-620 Net	285
SU-700 Smart-Net (486, 586, FS), 4 out	365
SU-1000 Smart-Net (FS, WS), 6 out	495
SU-1400 Smart-Net (950W), 6 out	625
SU-2200 Smart-Net (1600W), 8 out	899
SU-3000 Smart-Net (2250W), 8 out	1645
SU-1000 RM Net / SU-1000XL Net	575/599
SU-1400 RM Net	739
SU-2200 RM 3U / SU-2200XL Net	1235/1195
SU-3000 RM 3U	1799
Powerchute Plus:	
- for Novell	65
- for OS/2, LAN Server, 3Com	75
- for Unix / Xenix	99
- for Win & Win'95 / Win NT	55/69
Surge Arrest (PER 7)	17.99
Surge Arrest w. TEL (PER 7T)	22.99
Surge Network Strip (NET 7)	29.95
Surge Network Strip (NET 7T)	39.95
Surge Protector (P7)	9.99
Surge Station Net 8 / 8N	36/48
Surge Station Pro 8 / 8T2 / 8TV	32/39/49

PC POWER COOLING

CPUcool for 486 or P-75 to P-133 (1.9")	18.95
CPUcool for P-150 / P-200 (1.9W)	19.95
CPUcool for Pentium® Pro (3.2")	22.95
Silencer 230 Slim for Baby or Mid Tower	69
Silencer 230 for Full Tower	89
Silencer 270 for Full Tower	124
Silencer 270 Slim for Baby or Mid Tower	114
Silencer 235 ATX / 275 ATX	84/124
Standard 230 for Full Tower	85
Turbo Cool 300 ATX	126
Turbo Cool 300 for Full Tower	125
Turbo Cool 300 Slim for Baby or Mid Tower	115
Turbo Cool 400 ATX	199
Turbo Cool 400 Slim / for Full Tower	*(175/176)
Turbo Cool 450 for Full Tower (heavy duty)	285
Two-in-1 500 (slim, redundant)	215
Twinpower 900 (redundant)	895

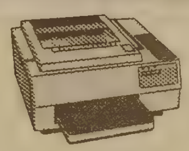
OTHERS

250W for ATX (Kingspao)	39
250W for Baby or Mid Tower, PS/2 (Kingspao)	35
300W UL for Full Tower, PS/2	45
300W for Full Tower, PS/2 (Kingspao)	49
RPT-600 300W Redundant for Tower	179

ACCESSORIES:

Battery Tester M-032	6.50
DMM: DT-890B (A,V,O,C,Hfe)	19.95
DMM: DT-830B (Adc,V,O,Hfe) pocket size	8.95
DMM: M-3900 (A,V,O,Hfe) big LCD	17.95
DMM: KT-7113 (A,V,O,C,Hfe) auto ranging	24.95
DMM: KT-7244 (A,V,O,F,Hfe)	21.95
DMM: ST-5308 (Adc,V,O,Hfe) battery test	11.95
Engine Tester KT-7181 (Dwell, Tacho)	18.95
Power Center Switching Systems	13.50
Test Probe / Tool Kit	1.99/7.95

16. PRINTERS & PLOTTERS



BROTHER

HL-730DX True 600dpi, 6ppm, Laser	365
MFC-4550 5-in-1, 600dpi, Laser, Fax	699
MFC-6550 6-in-1, Fax/ Copy/ Message Center/ Scan/ PC Fax/ Print	969
MFC-7000FC 6-in-1 Fax/ Copy/ Scan etc.	979

Canon

BJC-80 Color	285
BJC-250 Color	159
BJC-4300 Inkjet, Color	199
BJC-4550 720x360dpi, 5ppm, 11"x17"	475
BJC-7000 Color	379

EPSON

FX-880 9-pin	295
FX-2170 9-pin, Wide, max. 6 copies	449
LQ-570+ 24-pin	259
LQ-870 24-pin, Par	455
LQ-2070 24-pin, Wide	*(389)
LQ-2170 24-pin, Wide	549
Stylus 400 Color, 720dpi, 3ppm	*(185)
Stylus 600 Color, 720x1440dpi	*(239)
Stylus 800 Color, 720x1440dpi, 8ppm	*(335)
Stylus 800N w. Ethernet Card	*(529)
Stylus 1500 720dpi, fit A - C size paper	469
Stylus 1520 Color	759
Stylus 3000	1699
Stylus Photo (C209011)	*(355)

Epson Ink Cartridges:

Black Ink for II & IIS (SO20047)	19.95
Black Ink for 400/ 500/ 600/ Photo	19.45
Black Ink for 400/ 800+ (SO20025)	10.95
Black Ink for 800 Color/ 1520 Color (SO20108)	22.45
Color Ink for II & IIS (SO20049)	29.95
Color Ink for 400/ 600/ 800/ 1520	22.95
Color Ink for Stylus Photo (SO20110)	19.95

Epson Paper:

Banner Kit for 1520 (C811011)	31.95
Banner Paper for 1500 (SO41102)	25.95
- Banner Paper Holder for 1500 (C811003)	24
Coated Letter Paper 720dpi (SO41062), 100 sheet	12.95
High Quality Glossy Paper (SO41072), 15 sheet	24.95
High Quality Inkjet Letter (SO41111), 100 sheet	8.95
Iron-On Paper (SE41001), 10 sheet	12.95
Photo Quality, 4x6, (SO41134), 20 sheet	7.45
Photo Quality, 11x17 (SO41070), 100 sheet	26.95
Photo Quality Glossy (SO41124), 20 sheet	10.95
Photo Quality Glossy 11x17 (SO41075), 10 sheet	38.95
Photo Quality Glossy 13x19 (SO41074), 10 sheet	49.95
Photo Quality Legal (SO41067), 100 sheet	17.45

HEWLETT PACKARD

Color Laser Jet 5 (C3961A)	3875
Color Laser Jet 5M (C3962A)	4945
Deskjet 670C (C5884A)	208
Deskjet 692C	275
Deskjet 720C	349
Deskjet 870CXi	*(319)
Deskjet 890CXi	419
Deskjet 1000CXi (C2673A), print size 4x6 - 11x17	485
Deskjet 1600C for PC & MAC	1299
Deskjet 1600CM Postscript for PC & MAC	1899
Laser Jet 4V/ 4MV (B size)	1795/2595
Laser Jet 5 / 5M / 5N	999/1525/1285
Laser Jet 5Si / 5SiMX	2349/3395
Laser Jet 6LXi	*(377) 389
Laser Jet 6PXi / 6MP	745/879
Laser Jet 4000 (C4118A), 2 trays	1099
Laser Jet 4000N (C4120A) JetDirect	1415
Laser Jet 4000T (C4119A), 3 trays	1249
Laser Jet 4000TN (C4121A) JetDirect	1575
Mopier 5Si (C4176A) / w. Bundle	4445/6545
Office Jet 590 (C4645A) 4-in-1	399
Office Jet 630 (C5315A) 4-in-1	519
Office Jet Pro 1150C Color (C5300A)	775
Portable 340 (C2655A)	295
Portable 340CV	315

PLOTTERS:

Design Jet 430: D Size (C4713A)	1675
Design Jet 430: E Size (C4714A)	2495
Design Jet 450C D Size (C4715A)	1995
Design Jet 450C E Size (C4716A)	2895
Design Jet 750C+: D Size / E Size	4995/5695
Design Jet 755CM: E Size	8195
Design Jet 2000CP E Size (C4703A)	8295
Design Jet 2500CP E Size (C4704A), Ethernet	9995

**(sale price) .... SPECIALS, limited to stock on hand*
Prices subject to change without notice.

http://www.centralcomputer.com for current prices & product catalog

Accessories:

C3169A: Postscript for 5Si	435
C3760A: Lower Cassette for 4V/ 4MV	325
C3762A: Duplex for 5Si/ 5SiMX	479
C3765A: Envelope Feeder for 5Si	379
C3918A: Postscript for 5/ 5N	335
C3920A: Duplex for 5/ 5N/ 5M	475
C3921A: 500 Sheet Feeder for 5	225
C3927A: Power Envelope Feeder for 5	259
C4123A: Duplex for 4000	289
C4137A: 16MB for 4000	145

HP Ink Cartridges:

51625A: Color for 500C/ 550C/ 560C	26.95
51626A: Black for 500/ 540/ 560	24.45
51629A: Black for 590/ 600/ 660	24.95
51640A: Black for 1200C	23.95
51640C: Cyan for 1200C	27.95
51640M: Magenta for 1200C	27.95
51640Y: Yellow for 1200C	27.95
51641A: Color for 870C/ 855C/ 1600C	28.95
51645A: Black for 870C/ 855C/ 1600C	26.95
51649A: Color for 590/ 660C	29.25
C3102A: Cyan for Color Laser Jet	32.95
C3103A: Yellow for Color Laser Jet	32.95
C3104A: Magenta for Color Laser Jet	32.95
C3105A: Black for Color Laser Jet	7.95
C3067A: Color for 540	**(28)*
C4533A: Color for 600	**(29)*

HP Paper:

92296T: Transparency Film for Laser Jet, Letter, 50 sheet	17.95
C1812A: Greeting Card, Letter, 20 sheet	7.95
C1846A: Photo Paper, Letter, 20 sheet	9.95
C2974A: Glossy, Letter, for 5/ 5M, 50 sheet	39.95
C3850A: Opaque Bond, 36"x150' roll	24.95
C3877A: Coated Paper, 36"x150' roll	39.95
C5973A: Premium Glossy, Letter, 25 sheet	21.95
C5976A: Bright White Inkjet, Letter, 200 sheet	5.95
C6093A: Premium Photo 4"x5", 15 sheet	8.50

HP Toner Cartridges:

92274A: for 4L/ 4ML/ 4P	65
92275A: for IIP/ IIP+/ IIIP	74
92291A: for IIISi/ 4Si/ 4SiMX	129
92295A: for II/ IID/ III/ IIID	75
92298A: for 4/ 4M/ 4+/ 4M+/ 5/ 5M/ 5N	89
C3900A: for 4V/ 4MV	139
C3903A: for 5P/ 5MP/ 6P/ 6MP	75
C3906A: for 5L/ 5ML/ 6L	59
C3909A: for 5Si/ 5SiMX	179
C4127A: for 4000	89.95
C4127X: Extra Toner for 4000	129

IBM (NETWORK PRINTER)

#4312001: Laser, 600dpi, 4MB, 12ppm	1025
#4317001: Laser, 600dpi, 4MB, 17ppm	1365
#4324001: Laser, 600dpi, 4MB, 24ppm	2345

LEXMARK

Optra C Color, 600dpi, Postscript, 8MB, 3ppm	4495
Optra E 600dpi, 1MB, 6ppm	395
Optra S1250 1200dpi, 4MB, 12ppm	1045
- with LAN (S1250N)	**(1245) 1299*
Optra S1650 1200dpi, 4MB, 16ppm	1295
- with LAN (S1650N)	1545
Optra S2450 1200dpi, 4MB, 24ppm, 11x17	*2295
- with LAN (S2450N)	2595

NEC

Superscript 860 Laser	389

OKIDATA

SALE

ML184T 9-pin, Par, 300cps, max. 5 copies	235
ML320T 9-pin, 290cps, max. 5 copies	**(315)*
ML390T 24-pin, 312cps, for Win & Win 32	345
ML520 9-pin, 430cps	**(385)*
ML590 24-pin, 450cps, max. 5 copies	449
ML591 24-pin, Wide, max. 5 copies	625
Office 44 4-in-1	**(485)*
OkiPage 4W Laser, 4ppm	**(199)*
OkiPage 6E 600dpi, 6ppm	**(289)*
OkiPage 6EX 600dpi, 2MB, 6ppm	**(399)*
OkiPage 16N Laser, 600dpi, 16ppm	889
OL600E Laser, 600dpi, 6ppm	**(295)*
OL810E Laser, 600x1200dpi, 8ppm	**(565)*
OL1200 Laser, 600dpi, 2MB, 12ppm	**(949)*

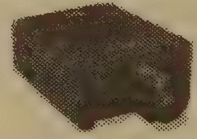
SEIKO

Smart Label Printer EZ30	145
Smart Label Printer Pro SLP220	235
Standard Label (2 rolls)	7.95

OTHER ACCESSORIES:

Auto Switch (non power) 2 to 1	11.50
Auto Switch (non power) 4 to 1	22.50
Data Switch 2 Way	5.99
Data Switch 4 Way	8.99
Parallel Auto Switch 2 to 1 bi-directional	19.95

17. PROJECTOR



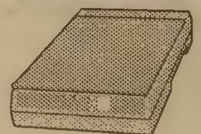
3M

Overhead M9100 AJB	289
Overhead M9200 AJC	399
Overhead M9550 AJH	615
Overhead M9700 AJJ	499

PROXIMA

Desktop DP5100 LCD	3499
Desktop DP5500 LCD 640x480, Zoom	4599
Ovation 810 8.4" LCD, 2M color, 640x480	1665
Ovation 944 10.4" LCD, 16.7M, 1280x1024	6395
Ovation+ 840 8.4" LCD, 16.7M, 800x600	2195
Ovation+ 846 10.4" LCD, 16.7M, 800x600	2695
Portable Overhead A653 3000 Lumens	475
Portable Overhead A655 4000 Lumens	799

18. SCANNER



ACER

AcerScan 310S 30-bit	**(135)*

COMMAX

Imager 730 30-bit 960dpi Parallel Port	109

EPSON

Expression 636 Executive	725
Perfection 600	235

HEWLETT PACKARD

ScanJet 6100 (C6267A)	**(699) 745*
- Auto Document Feeder (C6265A)	**(455)*
- Transparency (C6261A)	599
ScanJet 5P	**(245)*
ScanJet Office 4P + ADF (C1135A)	**(595)*
ScanJet Personal 5S	195

LEO

LeoPlus L3 Parallel Flatbed	95

MICROTEK

Scan Maker III w. TMA & Photoshop OCR	**(1399)*
Scan Maker E3+ 600dpi, 24-bit color, OCR	**(135)*
Scan Maker E6 1200dpi, OCR	**(269)*
Scan Maker E6Pro 1200dpi, Photoshop COR	499
Scan Maker V310 Parallel	145
Slide Maker 35T+ 1800dpi, 16.8M color	725
Auto Document Feeder ADF600	365
Color Pagewiz for Win, 24-bit	159
Transparency Adapter for E3 / E6	285/285

STORM TECH

Easy Photo Reader Parallel	**(115)*
Easy Photo Smart Page	**(149)*

UMAX

Astra 610P Win	**(139)*
Astra 610S Photo Deluxe	**(149)*
Astra 1200S Win Deluxe	**(249)*
Astra 1200S Win Photoshop	**(445)*

19. TAPE BACKUP

AIWA

GD-B8000 8GB DDS-2 4mm SCSI Int	649
TD-S3200 TR-3 3.2GB Int	135

EXABYTE

Eagle TR3 603003-004 3.2GB Int	**(145)*
EXB-8700LT 8mm 5-10GB Ext Drive	675
- with Arc Serve	899
Eliant 820S 8mm 7-14GB, Single Ended Int	1525
Eliant 820S 8mm 7-14GB, Single Ended Ext	1775
Mammoth 8900SL 8mm 20-40GB Int / Ext	2995/3245
210RK Automated 8mm Library (70-140GB)	6095

HEWLETT PACKARD

C1534 4mm Dat. 2GB SCSI Int Drive	**(549)*
- w. Int Kit (C1525) / Ext Kit (C1520)	725/845
C1536 4mm Dat. 2-4GB SCSI Int Drive	**(579)*
- w. Int Kit (C1526) / Ext Kit (C1521)	769/895
C1549A Surestore DLT 30GB Ext	3095
C1554 Dat. 24GB DDS-3 Int	1045
- w. Int Kit (C1555) / Ext Kit (C1556)	1399/1545
C1599 Dat. 8GB DDS-2 Int	765
- w. Int Kit (C1528) / Ext Kit (C1529)	965/1095
C5644B Surestore T4i 4GB Int	359
C5645A Surestore T4e 4GB Ext	459
C5648A Dat. 24GB x 6 Int Autoloader	2595
Mounting Frame 5.25" for C1533/ C1554	27 ea.
Mounting Frame 5.25" for C1534/ C1536/ C1599	25 ea.

iomega

2GB Tape - Single / 3-pk	19.95/57
Ditto 3200MB (QIC 3010/3020) Int	139
Ditto 3200MB (QIC 3010/3020) Parallel w. cart	239

NOVASTOR

Novaback 4-in-1 for Win'95 & NT - FD	**(55)*
Novaback 5.0 for Win'95 & NT - CD	54

Seagate

SALE

CNR-4324RP 2-4GB SCSI Int 5.25"	**(499)*
CNR-4326RP 8GB 4mm SCSI w. 5.25" rail	**(665)*
Tape Stor 420MB w. cartridge Int	139
Tape Stor 800MB Travan w. cartridge Int	139

Software (Arcada):

Back Up for Win'95	65
Back Up Exec for Netware Workstation 7.0	98
Back Up Exec for Netware Enterprise 7.11	845
Back Up Exec for Netware Server 7.5	435
Back Up Exec for Netware 4 Server 25-user	**(289)*
Back Up Exec for Win NT Workstation	189
Back Up Exec for Win NT Enterprise 7.0	839
Back Up Exec for Win NT Server 7.0	**(399)*

SONY

LanBacker 7000: 8GB DDS-2 w. ArcServe Serve Int / Ext	1095/1175
WanBacker 7000: 8GB DDS-2 w. ArcServe Enterprise Int / Ext	1695/1795
WanBacker 9000: 24GB DDS-3 w. ArcServe Enterprise Int / Ext	2150/2175

TAPE CARTRIDGES:

3M - 4mm 90M	7.50
- 8mm 112M	6.95
- MC3000XL (680MB)	26.50
- Travan TR-1 (800MB)	24.95
- Travan TR-3 (1600MB)	29.95
- Travan TR-4 (1600MB)	31.95
EXABYTE - 8mm 112M, 5GB	9.95
- 8mm 160MXL (for XL drives)	15.95
- 18C 8mm Cleaning Cartridge	19.95
- EXMC3000XL (1GB)	26.95
- MC3000XL (680MB)	21.95
HP - 92283B: 4mm 90M (2GB) / 5-pk	7.50/35
- 92283K: 4mm Cleaning Tape 2-pk	21.95
- 92300A: 4mm 120M (4GB) / 5-pk	12.95/59
- C1517A: 4mm 125M DDS-3 (12GB)	27.99
- C1572A: 4mm 120M Autoloader	119
- Travan for DT-1000 / 2-pk / 3-pk	29.95/54.95/82
MAXELL - 4mm 90M Dat.	**(7.99)*
- DC2120 (QIC80)	9.95
- DC2120XL (350MB)	16.95
SONY - 4mm 90M for DDS-1	7.95
- 4mm 120M for DDS-2	13.95
- 4mm 125M for DDS-3	27.95

20. VGA CARDS

ATI

All-in-1 Wonder 4MB PCI	**(185)*
All-in-1 Wonder Pro 4MB PCI	259
All-in-1 Wonder Pro 8MB PCI oem / reg	265/315
Xpert@Play 4MB AGP oem	175
Xpert@Play 4MB PCI	175
Xpert@Play 8MB AGP oem	225
Xpert@Play 8MB PCI	219
Xpert@Work 4MB AGP oem	165
Xpert@Work 4MB PCI	149
Xpert@Work 8MB AGP oem	219
Xpert@Work 8MB PCI	195
4MB upgrd for Xpert@Play & Xpert@Work	99

ASUS

V3000 4MB AGP	139

DIAMOND

Fire GL 1000 Pro 8MB AGP oem	**(199)*
Fire GL 1000 Pro 8MB PCI oem	**(189)*
Monster 3D 4MB PCI oem / reg	169/189
Stealth 3D 3000XL 4MB PCI oem / reg	165/185
Stealth 3D Pro + TV, 4MB PCI reg	149
Stealth 3D 4000 4MB AGP oem	99
Stealth II 3D 4MB PCI oem	109
Stealth 2500 DRAM PCI w. 1MB / 2MB	45/59
Stealth Video 64 2MB VRAM PCI oem	99
Viper V330 4MB AGP oem / reg	*(175)/189
Viper V330 4MB PCI oem / reg	*(175)/189

DYNAMIC PICTURES

Oxygen 102 8MB SDRAM PCI for Win NT	385
Oxygen 202 16MB SDRAM PCI for Win NT	879
Oxygen 402 32MB SDRAM PCI for Win NT	1759

HERCULES

Stingray 128 3D 8MB EDO reg	**(249)*

IMS

Twinturbo 128P VRAM PCI w. 2MB / 4MB	195/265
Twinturbo 128P VRAM 8MB PCI	395

LEADTEK

WinFast 3D L2300 8MB AGP / PCI	249/229

matrox

Millennium II 4MB AGP oem	185
Millennium II 4MB PCI oem / reg	165/195
Millennium II 8MB AGP oem	259
Millennium II 8MB PCI oem / reg	**(245/285)*
Mystique 220 2MB PCI reg	109
Mystique 220 4MB PCI oem / reg	119/139
Rainbow Runner Studio (upgrd for Mystique)	189
Rainbow Runner Television	89
M3D 4MB upgrade	95
Memory Upgrade (for Millennium II): - 4MB / 8MB / 12MB	129/195/279
Video, Graphics & TV Combo Kit	325

NUMBER NINE

Imagine 128 Series II 4MB EDO PCI	**(189)*
Revolution 3D 128 4MB AGP oem / PCI oem (purchase w. systems)	**(199/199)*
Revolution 3D 128 4MB AGP reg	239
Revolution 3D 128 4MB PCI reg	239
Revolution 3D 128 8MB AGP oem / PCI oem (purchase w. systems)	**(259/259)*
Revolution 3D 128 8MB AGP reg	295
Revolution 3D 128 8MB PCI reg	295
4MB Memory Upgrade (for Revolution)	159

OTHERS

Boca Voyage Movie Player Accelerator	285
InterGraph Intense 3D Voodoo 6MB	225
Movie Plus 1100 MPEG Decoder	199
STB Velocity 128 AGP (no TV), boxed oem	129
Televiewer for Win 3.11 & '95 only	89
Televiewer Plus for Win 3.11 & '95 only	145
Tvator Pro PC/Mac VGA to NTSC Scan Converter	119
Tvator Remote Pro VGA to NTSC Scan Converter	289

21. VIDEO / DIGITAL CAMERA

AGFA

Ephoto 307 Digital Camera	**(295)*
Ephoto 1280	*859*

BEST DATA

Digital Color Camera DDC-100	125
Digital Color HCC-100 w. Photo Edit	199

Canon

Powershot 350 LCD	475
Powershot 600 LCD	675

CASIO

QV-11 Digital Camera	285
QV-200 Digital Camera	399
QV-300 Digital Camera	665

EPSON

Photo PC Color Digital Camera	245
Photo PC-500 Digital Camera	345
- w. Photo Pix LCD Monitor	**(459)*
Photo PC-550	285
Photo PC-600 1024x768	**(665)*

Kodak

DC20 Digital Camera	**(175)*
DC25 Digital Camera	**(245)*
DC50 Digital Camera Zoom Lens	**(465)*
DC120 Camera 1.6" Color	735
DC210 Zoom Camera	839
DVC300 Video Camera	149

OLMPUS

D220L 640x480	475
D320L 1024x768	675
D600L 1280x1024, 3X Zoom	1195

SONY

DSC-F1 Digital Still	495
Mavica MVCFD-5 Digital Camera	489
Mavica MVCFD-7 w. Zoom	685

UMAX

Photorun Digital Camera DT for Win'95	239
Photorun Digital Camera LP for Win'95	199

USRobotics

Big Picture Camera + Capture	195
Big Picture Video (capture + modem)	189
Big Picture Video Kit + Camera	299

**(sale price) .... SPECIALS, limited to stock on hand*
Prices subject to change without notice.

http://www.centralcomputer.com for current prices & product catalog

SOFTWARE

PC SOFTWARE

Adobe

Acrobat 3.0.1	189
Acrobat Capture 2.0	559
FrameMakr 5.5 / (special)	745/*(499)
- upgrade	165
Illustrator 7.0 for Win 32	365
- competitive upgrade	265
PageMaker 6.5 for Win 32 / (special)	545/*(295)
Photoshop 4.0 / (special)	549/*(399)
Premier 4.2 for Win / (special)	499/*(299)

AUTODESK

AutoCAD Lite '97	405
Autosketch 2.1 for Win & Win'95	89
Symbols '97	87

BORLAND

C++ 5.0 for Dos, Win & Win 32 - CD	325
C++ 5.0 Developer Suite	425
C++ Builder 1.0 Standard / Professional	89/525
Delphi Developer 2 Kit / upgrade	*(395/255)*
Delphi 3 / upgrade	499/249
Paradox 5.0 for Win	*(99)*
Paradox 7.0 for Win'95 & NT	265
Turbo Assembly 5.0 for Win'95	115
Visual dBase 5.5 for Win & Win'95	269

COREL

Corel Draw 4.0 (2CD)	69
Corel Draw 5.0 for Win 3.11 - CD	*(195)*
Corel Draw 6.0 for Win'95 - CD	*(199)*
Corel Draw 7.0 for Win'95 & NT	*(399)*
Corel Draw 8 - CD / upgrade	425/225
Corel Flow / Corel Flow 3	*(59)/129
Corel XARA	179
Lumiere Suite	69
Ventura 7 for Win'95 - CD	549
Wordperfect Suite 8.0 for Win'95	285

DELRINA

Comm Server	*(39)*
Comm Suite 2.1	*(65)*
Cyberjack 7 for Win'95	*(29)*
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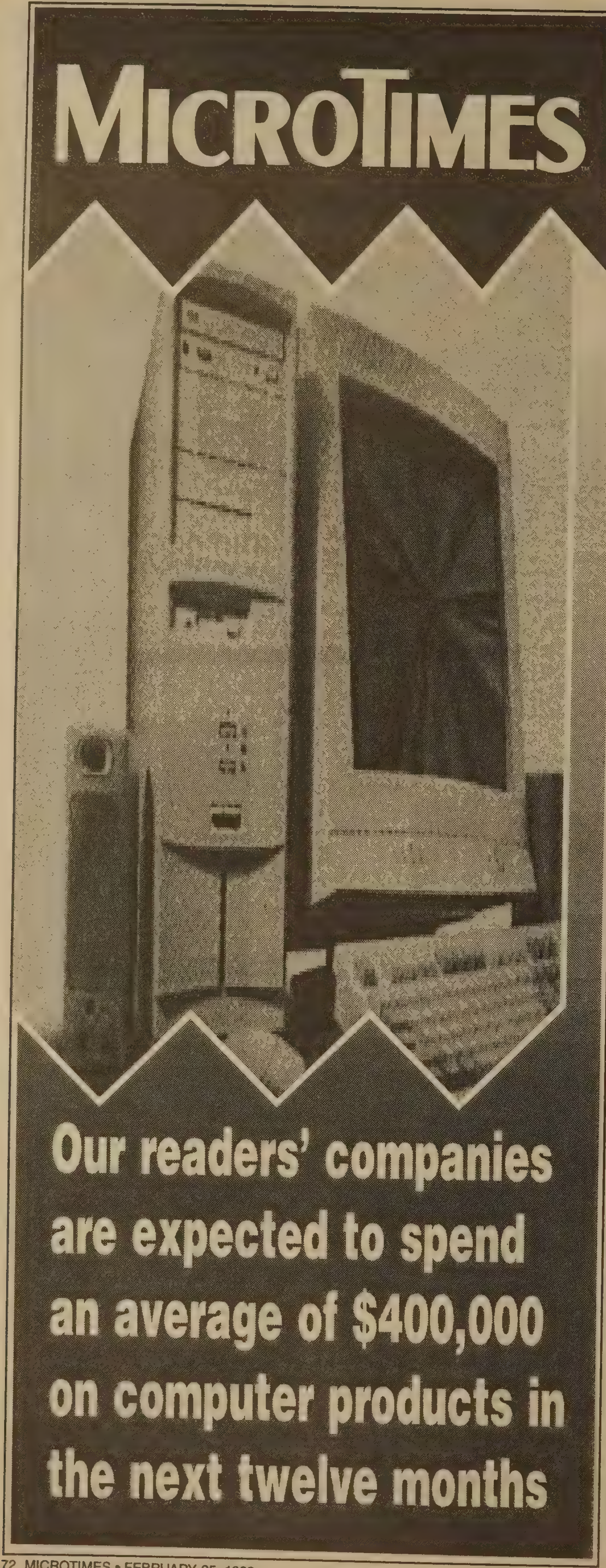
MICROTIMES
Our readers' companies are expected to spend an average of $400,000 on computer products in the next twelve months

32-Bit Computing *continued from page 60*

Having It Both Ways

On the one hand, internal drives are neater spacewise than externals, but on the other, once installed, they are inconvenient for fixes, or upgrades and a real pain if you need to continuously move drives from one system to another (as in the case of this series, where I test the same drives in different systems, or different drives in the same system). Wouldn't it make much more sense to remove internal drives as easily as externals?

Well, you can, by using removable drive enclosures. They consist of two parts: a receiving frame, to which the cables—SCSI/IDE from the controller and power from the power supply, connect; and a removable cartridge (or carrier), which contains the drive, and which plugs into the frame. The frame fits into a standard 5.25" bay and installs like a drive. The carrier accepts a 3.5" drive, which connects to its SCSI/IDE and power connectors. When the frame is installed into a bay and a drive into the carrier, you can pull the carrier with the drive out and plug it into any other bay—with a receiver frame!—without hassling with screws, or cables. There are various products in the market; here are some considerations.

•They should have connectors for your specific drives (IDE, SCSI narrow, SCSI wide).

•They should accomodate drives from 1" (4.5GB) to 1.6" (if you have 9GB drives) high, firmly and with enough clearance between the drive and the cartridge's top and bottom (in accordance to drive manufacturer's specifications).

•They should be made of solid metal, not flimsy plastic. And, preferably, they should have been tested with the kind of drives you will be using it for. This is particularly important for 10,000 RPM and even 7,200 RPM hard drives, which tend to get hot.

Some carriers have small fans in the back, which is a desirable feature, though not a substitute for the case's fan and good air circulation. Another convenient feature is the ability to set the SCSI ID on the carrier, eliminating the need to fool with jumpers on the drive itself (except once, when you install the drive into the cartridge, of course).

There are two types of enclosures—for hard and for removable disk drives (such as the SyJet, or tape). It is particularly important to verify the latter's compatibility with your specific removable disk drive, as they are not as standardized as the hard drives. Note that both types require exposed bays, of course. Because they are 5.25", CD-ROM drives are too big to fit into a removable enclosure, so if you need removability, get an external drive.

In the absence of standard specifications, products differ from one another in various ways. But recently Compaq has been pushing a set of such specifications—called DeviceBay—and persuaded Intel and Microsoft to support it. While it's just about time for the concept, these specifications are not inexpensive to implement and, besides, they are in the early stages (see the Resources section for more information).

I selected two products for evaluation: Kingston's Data Express DE100 (hard drives) and DE150 (removables). And CRU's DataPort VI (hard drives), sold by California PC Products with their cases.

continued on page 187

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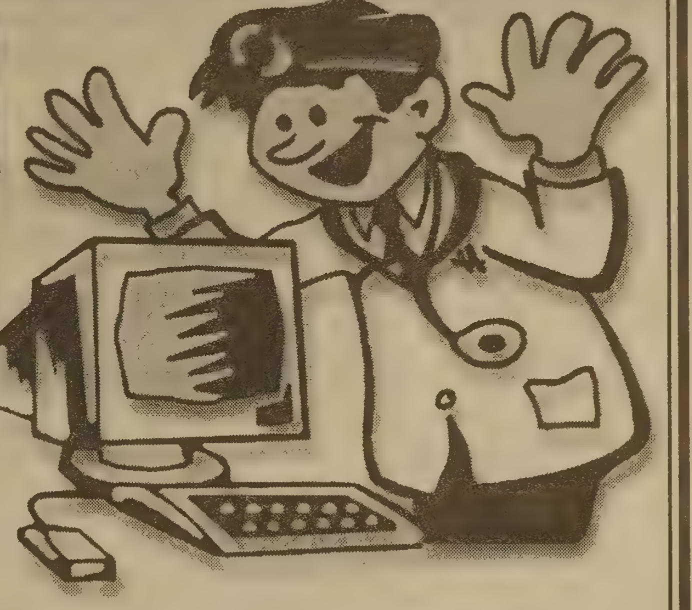

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Revisiting OCR

Converting Paper Documents To Text Now Works Much Better

By Ivars Bezdechi

Technological improvements in office equipment such as word processors and copiers have made the transferring of information less difficult. Yet one of the biggest challenges still facing small/home-office workers and the growing legions of Americans running businesses from their homes, is how to transfer large chunks of printed or typed characters into a word processor, where the text can be manipulated and changed without spending hours laboriously "rekeying" the document.

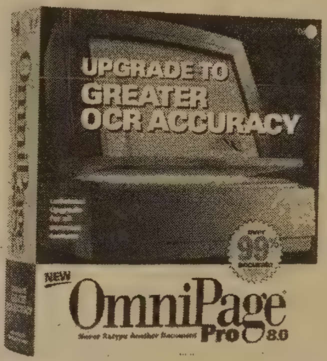
Other than delegating the task of rekeying a document to a secretary or hiring a temp, one technological solution which has always been available in some form or another is "optical character recognition" or "OCR." While the promises of OCR over the years have been great, the final results have often been quite disappointing—software up till now has been rather expensive and somewhat clunky.

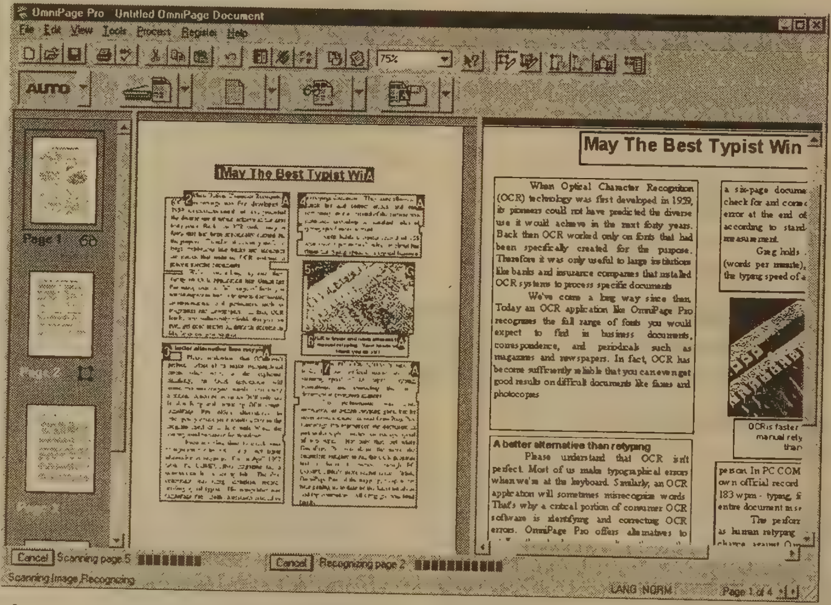
But with the advent of cheaper-and-faster digital desktop scanners and highly-improved software at competition-driven lower price points, small/home offices, whether utilizing PC- or Macintosh-based computers can finally reap the promises and benefits of optical character recognition.

A Brief History Of OCR

Digital desktop scanners capture the image of a page in one of two ways: by passing light-sensitive charge-coupled device (CCD) arrays over the illuminated surface of the page (flatbed scanners), or by moving the page past the CCD (edge-fed scanners). The scanner digitizes the image by dividing it into hundreds of pixel-sized boxes-per-inch and representing each box as either a "zero" or a "one," depending on whether the box is filled-in or empty. This matrix of dots (called a bitmap) can be stored, displayed, printed and manipulated by a computer as an image. But if this image is to be eventually utilized as text to be editable with a word processing program, the bitmap image must be processed by an OCR program.

Optical character recognition programs such as Caere's OmniPage and Xerox's TextBridge organize the scanned patterns of dots into characters, and use a variety of techniques to make decisions as to what the characters are.

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LANG NORM
Page 1 of 4

May The Best Typist Win

When Optical Character Recognition (OCR) technology was first developed in 1959, its pioneers could not have predicted the diverse use it would achieve in the next forty years. Back then OCR worked only on fonts that had been specifically created for the purpose. Therefore it was only useful to large institutions like banks and insurance companies that installed OCR systems to process specific documents.

We've come a long way since then. Today an OCR application like OmniPage Pro recognizes the full range of fonts you would expect to find in business documents, correspondence, and periodicals such as magazines and newspapers. In fact, OCR has become sufficiently reliable that you can even get good results on difficult documents like faxes and photocopies.

A better alternative than retyping

Please understand that OCR isn't perfect. Most of us make typographical errors when we're at the keyboard. Similarly, an OCR application will sometimes misrecognize words. That's why a critical portion of consumer OCR software is identifying and correcting OCR errors. OmniPage Pro offers alternatives to

a six-page docume
check for and corre
error at the end of
according to stand
measurement.

Greg holds
(words per minute),
the typing speed of a

OCR is faster
manual rety
than

person. In PC COM
own official record
183 wpm - typing
entire document in s

The perfor
as human retyping

New OCR products like OmniPage Pro (above) are up for the challenge.

The earliest OCR programs were limited to reading just one font in one point size, and was primarily used for processing preprinted mortgage loan applications in the banking industry. "Multifont" machines were eventually developed, capable of reading ten or more character styles using a system which compared the character to a library of bitmap images. The real limitation of this approach, however, was that the accurate interpretation of the character was satisfactory only as long as the fonts in the library were correctly and carefully selected.

Then came the systems which read text by breaking it up and interpreting as sets of lines and curves based on a system of "rules." These rules determined which character most closely matched the inputted image and processed the character. While this method worked well on clean images, it had its limitations, chiefly because the original document had to have "perfect" image quality—degraded characters and "noisy" pages would result in poorly interpreted text.

While these character recognition programs were highly touted by their publishers in the mid 1980s as "end-to-all-of-your-problems" applications, in actuality they fell terribly short in practicality and overall usefulness.

Building A Better Mousetrap

Seeing an opportunity to build a better mousetrap for an eager public, software engineers set their sights on developing an "omnifont" (many character style) system, which could read complex pages containing a mix of different typefaces without having to be "trained" by the user.

Instead of being "rule-based," the new system utilized algorithms—or neural networks—that learn characters by being trained on character examples. The end result was an OCR system that forms the basis for current OCR programs; it's "intelligent enough" to handle fonts it had

continued on page 78

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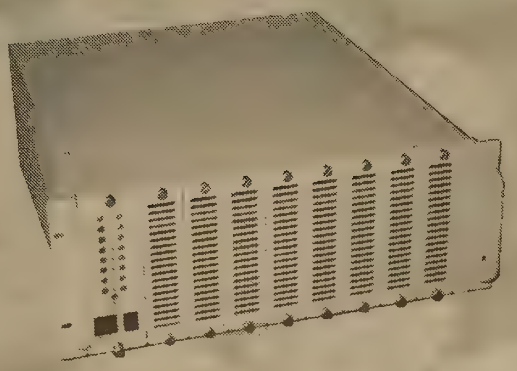

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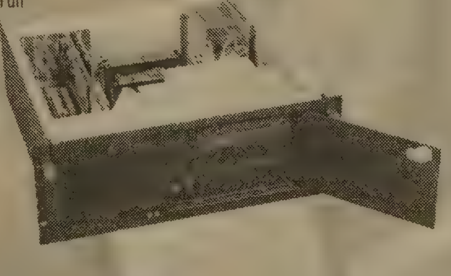

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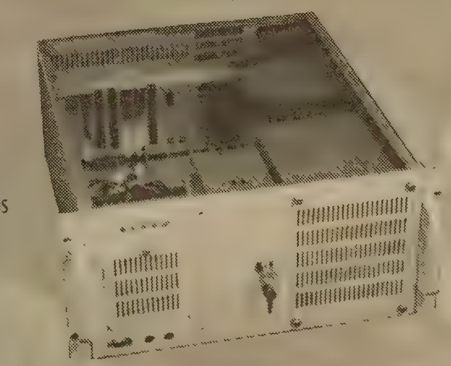

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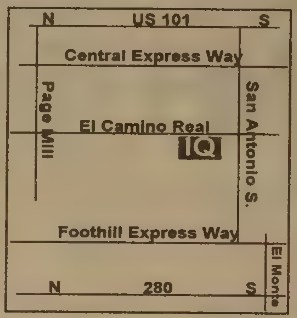

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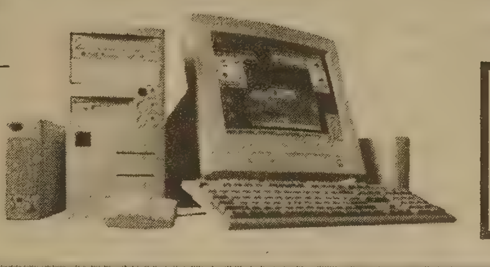

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Revisiting OCR

continued from page 74

never encountered before, a lot more accurate, and much better than other systems at dealing with degraded image quality documents.

Even more recently, the emphasis in OCR software has shifted from recognition of individual characters to recognition of individual words—which is especially helpful when the individual characters in a word are difficult to isolate and recognize (as is common on degraded document images from faxes and photocopies). The new technology enables the engine to recognize the whole word without first having to recognize its individual characters.

Small/home offices, whether utilizing PC- or Macintosh-based computers can finally reap the promises and benefits of optical character recognition.

But in typical, everyday use, the way the software generally works is that three main algorithms (among thousands of other complicated algorithms and "experts") are employed in analyzing text. There's a "segmentation expert"—the algorithm that looks at the millions of possibilities of different dots on a page and segments them into individual characters. (The "segmentation" process becomes more complicated on so-called "degraded documents" or characters printed on a colored background.) A "linguistic expert" analyzes the now-defined characters based on familiar letter combinations (the most common in the English language being a trigram of "t-h-e"). After both of these "experts" have been invoked, a "classifier expert" identifies and distinguishes what an actual character is—for example, the difference between a "c" and an "e." Thousands of "experts" can be deployed in a single document, which results in what the software considers to be the "correct" interpretation of the original bitmap image of a scanned document.

According to Tim Callan, a software engineer with Caere Corporation, publishers of OmniPage Pro, a best-selling optical character program for both the PC and Macintosh (street price: $129), incorporating the new technology in their software may not necessarily change the accuracy result for documents which can be "easily read," but will probably improve results for what he called "borderline documents"—damaged originals, faxes, newspapers and multiple generation photocopies. "If I have a document that is of very good quality, it is unlikely that OCR will make an error on it. A year from now it is still unlikely that the accuracy rate is really going to change. The question is more about how the engine is going to treat and interpret these borderline documents."

A Checkered Past

There is a strong realization in the OCR software industry that their not-so-great past reputation is something that they must deal with. Callan says that many computer users' impressions about the usefulness of OCR software have been drawn from the software that's often bundled with digital scanners. He says that the capabilities of this software do not match the performance of the full product.

"OmniPage Lite/OmniPage Limited Edition is the bundled version of our full-featured software and is not as accurate as our OmniPage Pro. These products have been designed to only give the user an idea of what the full-featured product can do," Callan says.

continued on page 82

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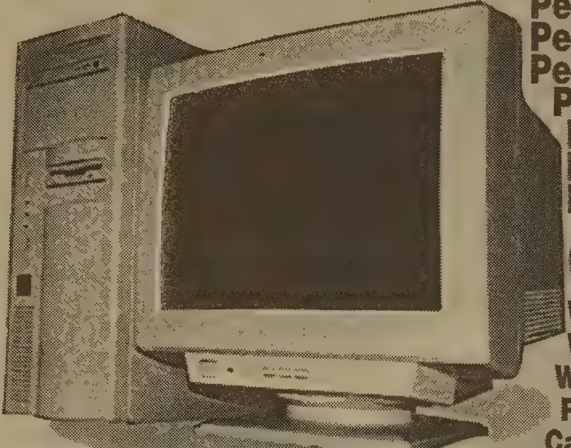

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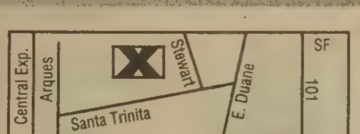

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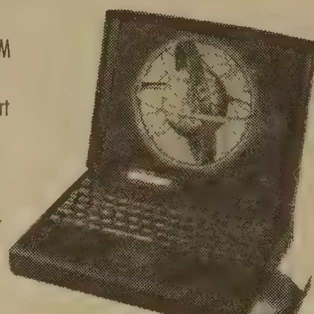

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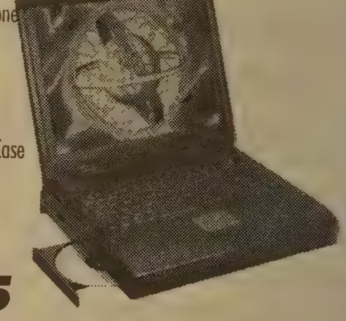

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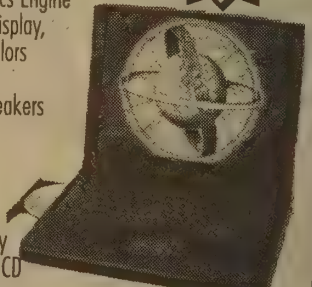

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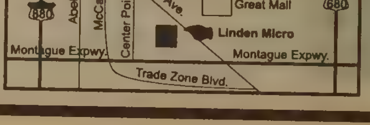

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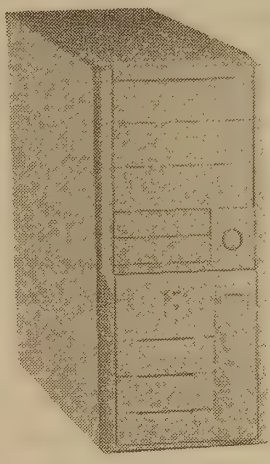

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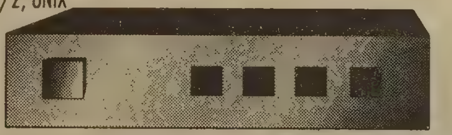

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VISA

DISCOVER

Revisiting OCR

continued from page 78

He adds that based on extensive consumer research, Caere did a large promotional campaign about two years ago to include this "lite" OCR software with most scanners. "With our improved engines we wanted to give users an opportunity to test OCR without having to pay any money for it, because we knew from our research that they would not. If you didn't like OCR five years ago, you certainly were not going to pay $500 for this software now.

XEROX
Upgrades Any Scanner's OCR
TextBridge PRO98
Turns paper into PC documents without retyping
ScanSoft, Inc.

Converting paper documents to electronic text is a snap with the latest OCR products like TextBridge Pro (above).

"We provided OmniPage Lite to the majority of scanners, which are being sold with the goal of having our users once again try and reevaluate OCR and see if it has changed," Callan says. This marketing approach also allowed an entirely new group of potential users who may not have necessarily bought their scanner for OCR use, but rather for conventional image scanning, to see what additional functionality is also possible with their scanner.

Customers using their OCR software beyond the scope of Caere's original vision are not unheard of around the offices of the Los Gatos, CA-based software publisher. The most extreme case of user ingenuity cited by Callan is the case of the user who stretched the symbol "training" feature of the software to its outer limits by training it to recognize Hebrew text. "They trained OmniPage to recognize each of the Hebrew characters and ran an entire book through OmniPage Pro with surprisingly great accuracy." While Callan says that this is an extreme case, people more commonly also use their program for converting paper into electronic text for repurposing in other applications and for archival purposes by scanning a document so it can be referenced in the future in its electronic form.

What's currently being developed in the area of optical character recognition? While the more accurate interpretation of "difficult" documents remains a priority, there's also strong interest in features and capabilities outside the core of OCR technology, such as a highly intuitive graphical user interface and improved "threading" (the number of functions which can be done simultaneously, with the goal of reducing processing times). "By approaching the problem differently, we can make it into a better experience for the user, apart from questions about making OCR more accurate," Callan says.

"OCR is a technology which will always be improving, because as we get better and better at it, we just get into more and more difficult documents. And if you consider it from a human level, we don't even read documents perfectly, but we can always do it better." ■

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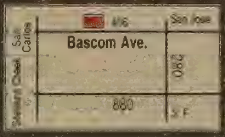

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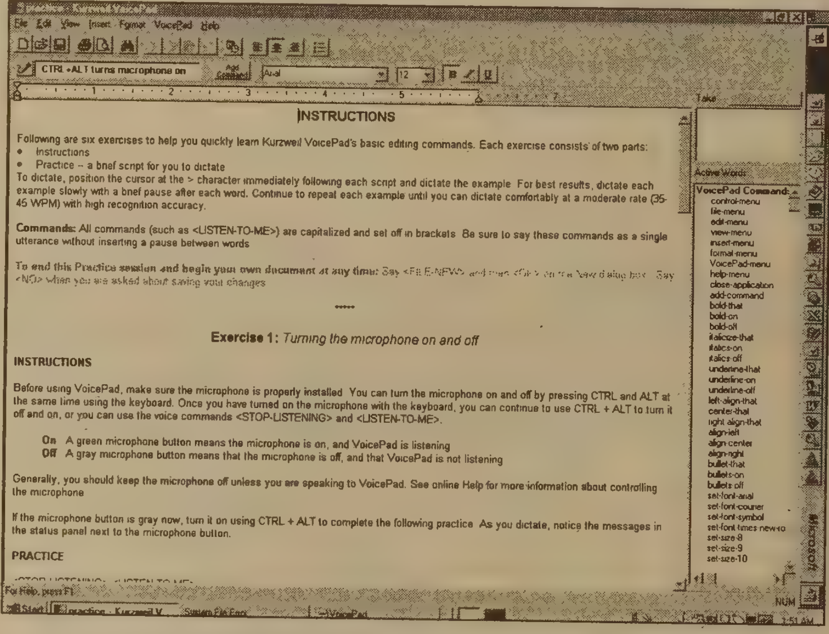
Talking To Your Computer

Does It Finally Work?

By Jim Pedicord

For years popular science fiction has constantly stressed being able to talk to your computer, with instant recognition and quick responses. More recently, IBM commercials make the same point. With the advent of extremely fast computers, voice recognition has now become a reality, no longer residing in the realms of fiction.

The biggest question is how efficient the current implementations of voice recognition are, and whether they can improve computer productivity in a substantial way for the average user or business. This article looks specifically at some current offerings on the Windows 95 platform for answers.



INSTRUCTIONS

Following are six exercises to help you quickly learn Kurzweil VoicePad's basic editing commands. Each exercise consists of two parts:

- Instructions
- Practice – a brief script for you to dictate

To dictate, position the cursor at the > character immediately following each script and dictate the example. For best results, dictate each example slowly with a brief pause after each word. Continue to repeat each example until you can dictate comfortably at a moderate rate (35-45 WPM) with high recognition accuracy.

Commands: All commands (such as <LISTEN-TO-ME>) are capitalized and set off in brackets. Be sure to say these commands as a single utterance without inserting a pause between words

To end this Practice session and begin your own document at any time: Say <FILE-NEW> and then <OK> on the New dialog box. Say <NO> when you are asked about saving your changes

*****

Exercise 1: *Turning the microphone on and off*

INSTRUCTIONS

Before using VoicePad, make sure the microphone is properly installed. You can turn the microphone on and off by pressing CTRL and ALT at the same time using the keyboard. Once you have turned on the microphone with the keyboard, you can continue to use CTRL + ALT to turn it off and on, or you can use the voice commands <STOP-LISTENING> and <LISTEN-TO-ME>.

On A green microphone button means the microphone is on, and VoicePad is listening
Off A gray microphone button means that the microphone is off, and that VoicePad is not listening

Generally, you should keep the microphone off unless you are speaking to VoicePad. See online Help for more information about controlling the microphone

If the microphone button is gray now, turn it on using CTRL + ALT to complete the following practice. As you dictate, notice the messages in the status panel next to the microphone button.

PRACTICE

The Kurzweil Voice Pad keeps a list of commands right on the deskptop for easy reference.

At present there are a couple types of software using speech recognition. The first is a simple command program which can control all aspects of computer operation, from opening an application to printing a file. The second is an actual dictation program where speech is converted into a text directly. The newest style of this type of software is the continuous speech programs which enable you to talk at a normal pace and have the results transcribed with great accuracy.

Though vast improvements have come along in the last several years, speech recognition does have a few particular requirements for optimal usage and accuracy. A low noise environment is very important; the use of such products is best achieved in a quiet office or room. A headset microphone (which is included in all of the products described below) must be used for quality recognition. This microphone is usually calibrated when initially used so that background noise is reduced and the sound levels are set optimally. Powerful systems are another requirements of speech recognition products with a mid-range Pentium needed for the lower-end products and a MMX Pentium or Pentium II system needed for the more advanced.

The low-end products are usually very simple to get up and running; a simple exercise lets you "train" the computer by saying a few simple words to let the program recognize your voice. The more advanced products have more complex training methods, usually reading a chapter or two of included literature for a good 20-30 minutes. But an added feature to these types of software is the ability for the program to continually improve its recognition capability the more it is used. I personally found after working with Via Voice Gold and Naturally Speaking for a few hours that my error percentage continued to decrease as the program learned the way I spoke certain words and added in words that it did not recognize initially.

Originally many voice programs were developed for people who could not type for various reasons; these products were usually slow and inefficient (though better than not being able to type at all). With the large memory capacities and speed of today's computers, speech recognition is now much more efficient and can actually be a quicker form of input and interface with the computer.

The latest software can now take complete control of your computer, enabling you to open applications, print documents, manipulate files and even send off an email without touching a keyboard or mouse. Older products required the user to speak words slowly and leave a noticeable pause between each word. But now, with the new continuous speech programs, you can dictate at a much more rapid and normal pace—almost like carrying on a normal conversation!

At home or in a small office, voice recognition can be a valuable tool. This entire article was written using a combination of voice recognition products. Corrections were done by simple voice commands and the entire piece was emailed to the editor without touching a keyboard or mouse.

Though it will be a few years before the mouse and keyboard go the way of the 5 1/4" floppy, and probably a few more before we are carrying on a detailed conversation with our silicon friend, speech recognition is already here to stay.

Kurzweil Voice Pad, Voice Commands, Voice Pro and Voice Commander

Kurzweil, recently purchased by Lernout & Hauspie, has several speech recognition products on the market ranging from a simple dicta-

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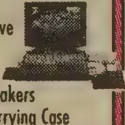

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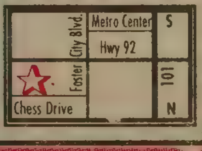

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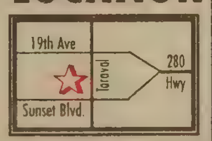


tion software to more advanced speech and computer control products.

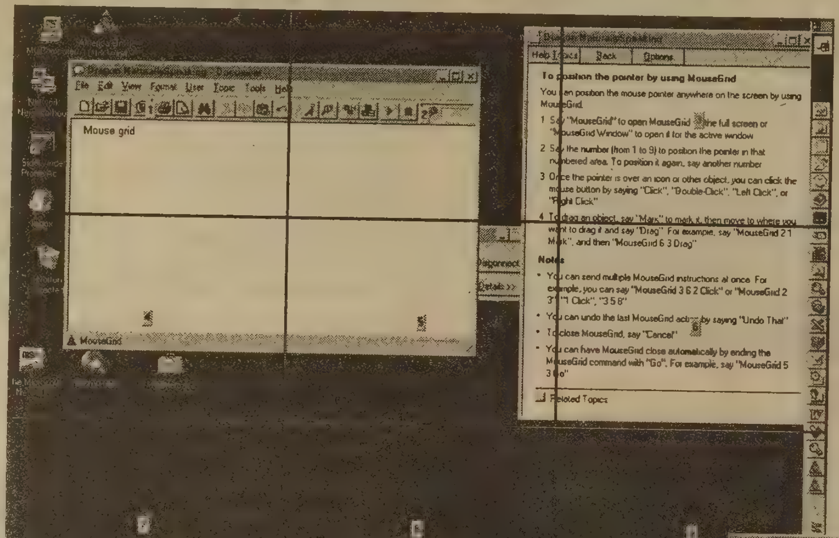
Voicepad, though inexpensive, is a good start for anyone interested in this new form of computer input. Probably best suited for someone wishing to use the technology sparingly and in conjunction with a mouse and keyboard, this product does have some nice features. No detailed training is needed, and you can be working with Voicepad in just a few minutes.

Generally this product is best for dictating short documents and email, or entering strings of numbers. All the data remains on the "voice pad" (very similar to Word Pad) and can easily be cut and pasted to your document or mail client. Another nice feature is the ability of the program to help determine the correct word when homonyms appear.

A different aspect of voice recognition appears with Voice Commands for Microsoft Word. This product is strictly an additional tool to help with the preparation of documents. Running it in conjunction with Microsoft Word, you can quickly format text by simply speaking a few easy to remember commands. Quite complex functions ranging from converting text to tables or moving sentences around the page can be performed in seconds without touching the keyboard.

Kurzweil products use "natural language commands," which means that straightforward sentences may be used to perform commands. This command structure is much easier to use and remember because exact commands do not need to be used. "Underline this sentence" is a simple command which will do just as it describes. For someone using Microsoft Word extensively, Voice Commands can be an excellent addition.

For large scale text inputting, Kurzweil has two programs which can be used for larger applications, Voice Plus and Voice Pro. Both products can work with all major applications, suites and communication programs, integrating seamlessly within them. Though they're a little slower (running together of words can cause inaccuracies) than the IBM or Dragon System speech programs, they have plenty of interesting features that can make them useful. Something unique to these two products is the ability to select gender and age when setting up a user, giving more accurate recognition. A simple macro designer is also included, letting you automate the more mundane tasks with a simple spoken command.



To position the pointer by using MouseGrid

You can position the mouse pointer anywhere on the screen by using MouseGrid.

1 Say "MouseGrid" to open MouseGrid for the full screen or "MouseGrid Window" to open it for the active window

2 Say the number (from 1 to 9) to position the pointer in that numbered area. To position it again, say another number

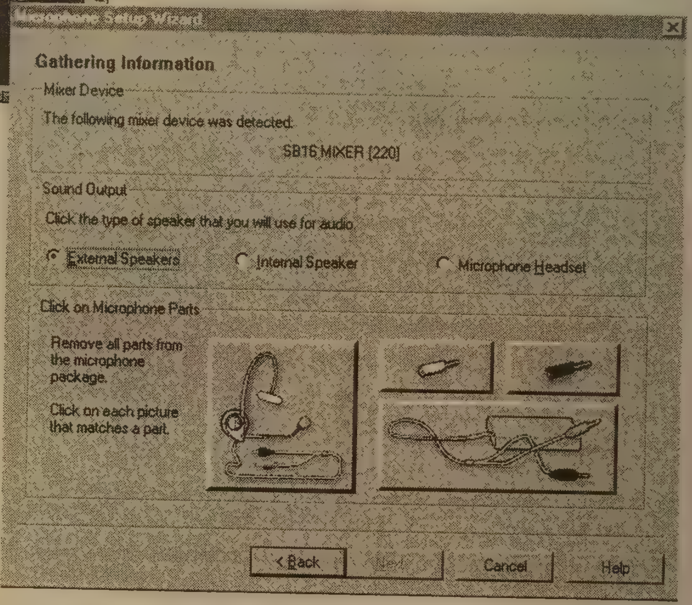
3 Once the pointer is over an icon or other object, you can click the mouse button by saying "Click", "Double-Click", "Left Click", or "Right Click"

4 To drag an object, say "Mark" to mark it, then move to where you want to drag it and say "Drag". For example, say "MouseGrid 2 1 Mark", and then "MouseGrid 6 3 Drag"

Notes

- You can send multiple MouseGrid instructions at once. For example, you can say "MouseGrid 3 6 2 Click" or "MouseGrid 2 3 1 Click", "3 5 8"
- You can undo the last MouseGrid action by saying "Undo That"
- To close MouseGrid, say "Cancel"
- You can have MouseGrid close automatically by ending the MouseGrid command with "Go". For example, say "MouseGrid 5 3 Go"

Related Topics



Gathering Information

Mixer Device

The following mixer device was detected:

SB16 MIXER [220]

Sound Output

Click the type of speaker that you will use for audio.

● External Speakers ○ Internal Speaker ○ Microphone Headset

Click on Microphone Parts

Remove all parts from the microphone package.

Click on each picture that matches a part.

Above: Dragon Naturally Speaking allows you to control the mouse pointer through spoken commands on the mouse grid; right: The IBM Via Voice Microphone setup screen helps to set up the microphone for optimal recognition.

The main difference between the two, besides price, is dictionary size, with Voice Plus having a 30,000 active word vocabulary and Voice Pro having a 60,000. Program control is also available with this product, enabling you to open applications, save and print files and format text. Depending on usage, both products can fit well in a home or small office, enabling the user to quickly input data and control the computer through the use of spoken words.

As of press time Lernout & Hauspie is putting the finishing touches on their first continuous speech product, L & H Voice Xpress and Xpress Plus, which include many of the high-end features found in the IBM and Dragon Systems products at an entry level price. Expected to be included are fast translation (100+ wpm) of spoken text or commands, customizable vocabulary and built in text-to-speech.

IBM Via Voice Gold

IBM's speech division has put out several voice products over the years, with the latest incarnation being Via Voice Gold, a continuous speech product which can easily achieve over 100 wpm in optimal situations. Though this program can be set up by calibrating the microphone and the reading three sentences, the best performance comes when you run the enrollment process, which leads you through 265 sentences to train the software for your voice. Multiple users may be set up, each with their own profile, which is nice if you have several people working on the same computer.

Though the documentation that comes with the program is rather skimpy (most is really found in the help files), the program is rather easy to use. Speech may be interpreted directly into the application, so no cutting or pasting to a word processor or email program is needed. Also included in the package is the IBM Voice Center, a small applet that can be used to control all the functions of the computer, and a text-to-speech option for reading back what has been entered.

The actual speech recognition itself is excellent, and, with the ability to customize the vocabulary up to 64,000 words (with a backup dictionary of 260,000 words), the error potential becomes greatly reduced after using the program for a period of time. An interesting aspect to the program is the ability to "play" back the actual speech used when an unknown word is encountered. This makes it much easier to correct a text, though the amount of disk space used increases dramatically.

Overall this is a very good product and can fit nicely into small office where large amounts of data need to be entered into a computer.

continued on page 190

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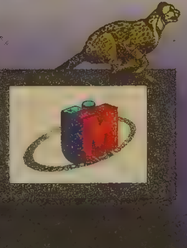

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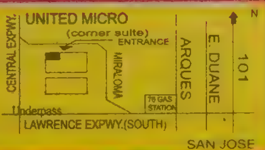

Suitable Work For A Successful Telecommuter

Quantifying The Types of Work Appropriate For Telecommuting

By Robert Moskowitz

Even the most skillful, enthusiastic, hard-working, and well-trained telecommuter will fail if the only assignments he or she receives include work that cannot reasonably be accomplished on a telecommuting basis. That's why the companion evaluation to the "Profile Of A Successful Telecommuter" (Issue # 164, May, 1997) you saw in this space last year must be an equally fair-minded evaluation of the work a candidate for telecommuting is typically asked to do.

Because their work generally can't be done while telecommuting, you won't find many surgeons or plumbers in the ranks of successful telecommuters. Receptionists and service workers are also rarities in the "work-at-home" population.

But during the past few decades of steadily continuing growth in the numbers of telecommuters, more and more people in a wide range of front-line, supervisorial, mid-managerial, creative, professional, and strategic leadership positions have chalked up considerable success while performing at least some of their duties off-site.

The general rule is that you needn't forget how to get to the office to become a successful telecommuter—the vast majority of telecommuters stay home to do their work only one or two days per week. The rest of the time, they're in the office like their non-telecommuting colleagues. This "home and away" pattern creates the possibility that you can "time shift" your assignments to place the responsibilities most suitable for telecommuting into full days of work—and telecommute only on days when you do that work.

On this basis, tens of millions of people doing quite ordinary work can find a way to do it very well without physically traveling to their employer's centralized office.

To quantify the kind of work that's suitable for telecommuting within any individual's set of responsibilities, you can use the accompanying Telecommuting Work Suitability Index.

> Tens of millions of people doing quite ordinary work can find a way to do it very well without physically traveling to their employer's centralized office.

Basically, it's a questionnaire you can administer to a telecommuting candidate, or to yourself (if you're interested in pitching yourself as a telecommuter to your boss). From the answers, you can make a fairly accurate determination of whether or not a sufficient proportion of the job's normal work can be accomplished via telecommuting.

You can administer the questionnaire as often as there are changes in the types of work to be evaluated.

The questionnaire asks for "how many hours" you spend at various types of work. You can guess at these figures, or you can use a relatively simple but accurate "time log" form (available from the American Telecommuting Association, Washington, DC, *www.knowledgetree.com/ataforms.html*) to make a more accurate determination.

Once you have listed the hours of effort for each of these categories, review the whole list. You might find you've listed more hours than you actually work during a typical week. That's because estimates made from memory are notoriously inaccurate. If you find this happening, you'll get better results when you revise your original answers to reflect more accurately how you allocate your time to the various kinds of work you do.

After you're satisfied with your answers to the questionnaire, read on to see how to interpret your answers.

Telecommuting Work Suitability Index

How many hours per week do you typically spend at each of the following? Feel free to add more categories to describe the work you actually do. For each item, calculate separately the number of hours of work you must do in the centralized office (alone, and with others) and the number of hours in which you could have accomplished some of this work away from the office, perhaps working at home or at a telework center.

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658812 U	D.T	P-II 233	32MB	512K	2.5GB	OPT	S3/2MB	WIN 95	**$1859**
658851 U	D.T	P-II 266	32MB	512K	4.2GB	16X	S3/2MB	WNT 4.0	**$2319**

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VECTRA VL
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All Models Include Keyboard & Mouse

D4596 B	D.T	200MMX	32MB	NO	2.5GB	24X	YES	2MB	WIN 95	**$1349**
D561388 A	D.T	233MMX	16MB	10/100	2.1GB	OPT	NO	2MB	WIN 95	**$1209**
D3991N	D.T	166MMX	32MB	10/100	2.5GB	8X	YES	2MB	WNTW	**$1789**
D3993 A	D.T	200MMX	16MB	NO	2.5GB	8X	YES	2MB	WIN 95	**$1615**
D5591 A	D.T	166MMX	16MB	NO	1.0GB	NO	NO	2MB	WIN 95	**$939**
D5592 A	D.T	166MMX	16MB	NO	2.1GB	NO	NO	2MB	WIN 95	**$995**
D5602 A	D.T	200MMX	16MB	NO	2.1GB	NO	NO	2MB	WIN 95	**$1035**
D5604 A	D.T	200MMX	32MB	NO	2.1GB	NO	NO	2MB	WIN 95	**$1249**
D5223 B	M.T	233MMX	32MB	NO	4.0GB	24X	YES	2MB	WIN 95	**$1629**
D5044 N	D.T	PII 266	32MB	10/100	4.0GB	24X	YES	4MB	WNTW	**$2039**
D5052 N	M.T	PII 266	64MB	10/100	4.0GB	24X	YES	4MB	WNTW	**$2195**
D5550 A	M.T.	166MMX	16MB	NO	2.1 GB	NO	NO	1MB	WIN 95	**$919**
D5555 A	M.T.	166MMX	16MB	NO	2.1GB	16X	NO	1MB	WNTW	**$1095**
D5633 N	M.T	200MMX	32MB	NO	2.5GB	NO	NO	2MB	WNTW	**$1349**

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- **Yamaha OLP4 SA on Board**
- 56K Internal Fax/Modem w/Voice
- **Diamond Stealth 64 3D w/4MB VGA Card**
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- Amplified Stereo Speakers 160W
- ECI 104 Keyboard w/PS/2 Style
- Microsoft OEM PS/2 Mouse w/Pad
- Windows 95, CD-ROM Ver.

Monitor Not Included

166MHz MMX..........$949
200MHz MMX..........$969
233MHz MMX.........$1059

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56K Courier Int/Ext	$239/269
56K/Sportster Int/Ext	$165/195
56K/Sportster w/Voice Int/Ext	$185/209
MOTOROLA (OEM)	
56K Modem Surfer Int/Ext	$95/119
56K Voice Surfer Int/Ext	$99/125
Pragmatic	
56K Fax Modem Int. w/ Voice	$89
33.6 Fax Modem Int. w/ Voice	$49

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intel.	
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PILA 8460B 100TX/5 Pack	$51/249
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- **MS Internet • MS Home Essentials 97**
- **MS Home Essentials 97**

Monitor Not Included

166MMX $969
200MMX $995
233MMX $1079

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Redwood Dual Pentium® II R 440LX	$569
Atlanta Pentium® II "ATX" AL440LX	$189
Atlanta Pentium® II "ATX" AL440LX w/Audio	$195
Anchorage w/512K/Audio/ATI 2MB 430TX	$209
Anchorage w/512K & Audio 430TX "ATX"	$179
Lonetree w/512K P75-233 430TX	$165
ASUS	
SP976-V P75-233 w/512K	$95
TX97XE P75-233 430TX (ATX)	$145
P2L97 SCSI Pentium® II ATX 440LX	$279
P2L97 Pentium® II ATX 440LX	$189
Abit	
LX6 Pentium® II 440 AT Jumperless	$145
PX 5 P75-233 512K AT Jumperless	$89
PD5A P75-233 512K AT Jumperless	$79
Shuttle (Spacewalker)	
HOT-579 512K Via P75-233MMX AT	$89
HOT-637 Pentium® II 440LX (ATX)	$139
HOT-635 Pentium® II 440LX w/SCSI (ATX)	$259
HOT-555A 512K P75-233MMX 430VX	$95
HOT-569 512K P75-233MMX/AMD K6 430TX	$109

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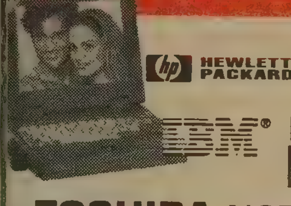

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460 CDT	166MMX	2.1	32	10X	33.6	12.1TFT	$CALL
510 CDT	133	2.1	16	10X	28.8	12.1TFT	$CALL
730 XCDT	150MMX	2.1	16	10X	28.8	12.1TFT	$CALL
740 CDT	166MMX	3.0	16	10X	28.8	13.3TFT	$CALL

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2000 CT F1373A	133MMX	1.8	16	NO	NO	12.1TFT	$1799
2000 CS F1371A	133MMX	1.3	16	NO	NO	12.1DSTN	$1719
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380 ED 2635 SAU	166MMX	2.1	16	20X	NO	12.1DSTN	$1849
380 ED 26356 AU	66MMX	3.0	16	8X	NO	12.1TFT	$2579
560 E 264040 U	166MMX	2.1	16	NO	NO	12.1TFT	$2889
760 XL 9547U9C	166MMX	2.1	16	OPT	NO	12.1TFT	$3669
770 954830 U	233MMX	4.0	32	OPT	NO	13.3TFT	$3995
770 9546 U	200MMX	3.2	32	OPT	NO	13.3TFT	$3669

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565 TX	166MMX	2.0	32	20X	33.6	12.1TFT	$2309
765 TX	166MMX	3.2	32	20X	56K	12.1TFT	$3059
634 TX	133MMX	2.0	16	16X	33.6	12.1TFT	$1929

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4350 X	150MMX	2.1	16	10X	33.6	12.1TFT	$1559
7360	166MMX	2.1	32	10X	56K	12.1TFT	$2049
8560	166MMX	2.1	16	10X	56K	13.3TFT	$2569
7580	233MMX	4.0	32	20X	56K	13.3TFT	$3489
7560	166MMX	3.0	32	10X	56K	13.3TFT	$2359
7370	200MMX	3.2	32	20X	56K	12.1TFT	$2995

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5.2GB UIDE 3052AT	235
6.4GB UIDE 3064AT	259

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HITACHI

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17"	CM620U	1280x1024	.28	489
17"	CM630	1600x1200	.22	609
19"	751	1600x1200	.22	825
21"	CM800U	1600x1200	.22	1199
21"	CM803U	1800x1440	.22	1465

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15"	E655	1280x1024	.28	259
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17"	G773	1280x1024	.26	475
17"	E771	1280x1024	.27(NEW)	395
20"	G800	1600x1280	.28	965
21"	G810	1600x1280	.25	979
21"	P810	1600x1280	.25	1079
21"	P815	1800x1440	.25	1215

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15"	100ES	1280x1024	.25	$335
15"	100GS	1280x1024	.25	355
17"	200ES	1280x1024	.25	579
17"	200GS	1280x1024	.25	645
20"	300SFT	1600X1200	.25	1115

NEC

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15"	A500	1280x1024	.28	289
17"	E700	1280x1024	.25	645
17"	A700	1280x1024	.28	565
21"	P1150	1600x1200	.28	1179

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4MV, 12MB, 16ppm, 600dpi	2595
4000 4MB, 17ppm, 1200dpi w/2 Trays	1095
4000T 4MB, 17ppm, 1200dpi w/3 Trays	1269
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STYLUS Color 600 1440x720 6 Black 4 Color	263
STYLUS Color 800 1440x720 8 Black 7 Color	369
STYLUS 1520 Support 17"x22" 1440DPI	759

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ASTRA 610S 600DPI 30 Bit SCSI	169
ASTRA 1200S 1200DPI 30 Bit SCSI	439

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brother	
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MFC 4450	595
Canon	
C5000	$489
C3000	339

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Viper V330 4MB PCI/AGP	169/175
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Successful Telecommuting *continued from page 88*

Interpreting Answers To The Telecommuting Work Suitability Index

The various types of work itemized in the Index are intended mainly to stimulate clearer thinking about the work one does, and whether or not it might be suitable for telecommuting. Similarly, the various columns are intended mainly to stimulate clearer thinking about how one works, and how much of one's work might be suitable for doing as a telecommuter.

There are two ways to look at the numerical totals derived from answers to the Index.

The Literal Interpretation

If you take an "absolute, literal" approach, you can say the total number of hours listed in the fourth answer column is exactly the amount of work there is available to do as a telecommuter. If you have listed eight hours of work, that's one full day of work to be done as a telecommuter each week. Listing sixteen hours of work would indicate two days worth of responsibilities each week that are suitable to be done as a telecommuter. And so forth.

The Relative Interpretation

But most people are notoriously poor estimators of how many hours they spend doing certain kinds of work. So it's often better to take a "relative, proportional" approach to interpreting these same numbers.

Under this interpretation, you calculate the ratio of hours listed in the third answer column to the hours listed in the fourth answer column. If both numbers are the same, or nearly the same, then half the work involved in this job is probably suitable to be done while telecommuting. If the number in the third answer column is four times larger than the number in the fourth answer column, then about twenty percent of the work is the kind that can be done as a telecommuter.

In some cases, you'll see the number in the third answer column as high as nine, 10, or even 20 times larger than the number in the fourth answer column. These ratios show there's only one full day of responsibilities suitable for telecommuting in every two, three or four weeks of work.

The relative approach to interpreting the Telecommuting Work Suitability Index is probably more accurate, because it tends to compensate for any errors made in estimating the number of hours spent at various kinds of work. Assuming these estimation errors are generally consistent, the accuracy of the evaluation will not be materially compromised.

continued on page 98

Telecommuting Work Suitability Index

	Hours Of Work In Office			
	# Hours Per Week Of Work Alone	# Hours Per Week Of Work With Others	Total # Hours Per Week Of Work (In Office)	# Hours Per Week That Could Be Worked Out Of Office
Mental work:				
Analyzing (financials, contracts, plans, or anything else):				
Auditing (transactions, cash flows, income, expenditures, or anything else):				
Creating (proposals, ideas, solutions, written materials, or anything else):				
Updating or Improving (current projects, existing plans, future operations):				
Planning (your own work, or the work of others):				
Problem Solving (thinking about a problem or a solution — don't include the time needed for physical travel to a location to view a problem-related situation or piece of equipment):				
Other?				
Computer information work:				
Entering or retrieving data:				
Crunching numbers:				
Building simulations or models:				
Running simulations or models:				
Generating e-mail or responding to e-mail:				
Other?				
Other information work:				
Contract preparation or revision:				
Correspondence:				
Numerical or financial calculations:				
Filling in or processing forms:				
Designing (anything from graphics to architecture or fashion):				
Meetings (one on one):				
Meetings (with two or more people at a time):				
Meetings (via telephone):				
Project analysis:				
Project management (including planning, record-keeping, reporting, tracking resources and progress):				
Researching (including determining the answers to specific questions, increasing your overall knowleldge, and checking facts):				
Sales (face to face, and prep time):				
Contact work (including contact with customers, suppliers, shippers, and outside contractors):				
Other reading:				
Other writing:				
Other kinds of work not listed above:				
Totals				

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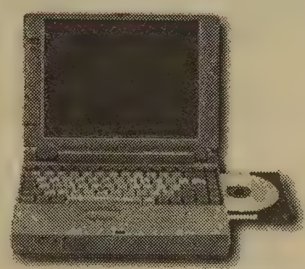

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Pentium® 200MHz MMX. $1900
Pentium® 233MHz MMX. $1990

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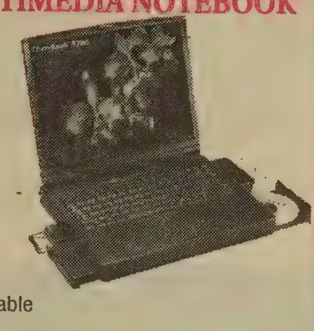

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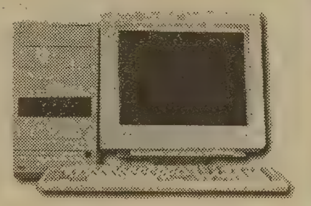

- Intel i430 TX Motherboard / 512K Cache
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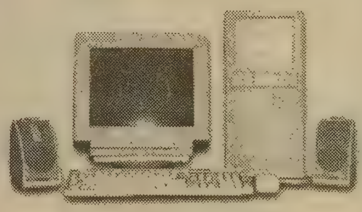
PENTIUM® II 233/266/300 SYSTEM



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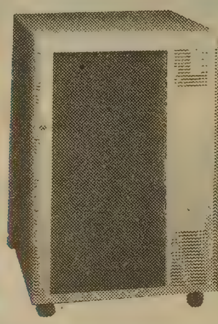

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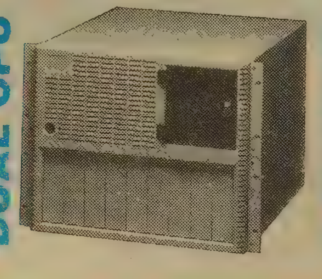

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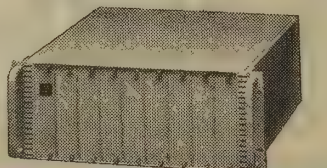

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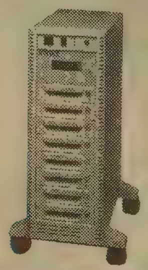

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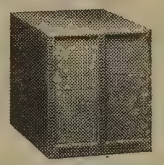

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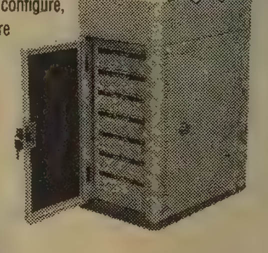

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Successful Telecommuting *continued from page 92*

Generally, you'll find that a relatively large proportion of most jobs can be done while telecommuting. But that doesn't mean all of that work should be done this way. Experienced telecommuters may be able to switch their schedules so massively without losing a beat. But for anyone new to this style of working, too much telecommuting too soon can lead to discomfort, and loss of productivity. Assuming the telecommuter involved is relatively new to this working arrangement, the best approach for most situations is to rearrange and reschedule various responsibilities to create no more than one day of telecommuting per week. Only after the individual becomes comfortable working as a telecommuter, and demonstrates an ability to be fully productive away from the central office, is it prudent to add more days of telecommuting to his or her schedule.

Biggest Obstacle To Telecommuting Shifting From Frontlines To Backroom Staffers

For years it has been believed—and I'm among those guilty of accepting and even promulgating the idea—that one of the biggest obstacles to the expansion of telecommuting has been frontline supervisors. Large numbers of people in these positions are thought to be very uncomfortable with the notion that those reporting to them might win permission to stay home and do who-knows-what instead of coming in to the office where they can be watched and judged.

> The torch of myopia and fear regarding telecommuting now appears to have been successfully passed from the front lines to the back office, where it can conceivably do more harm than ever before.

But according to the email, phone calls, and letters I've been getting recently, supervisors are now far less of an obstacle than the staffers in the Human Resources department. Apparently, significant numbers of these bureaucrats are now taking the position that if they allow one employee to telecommute, they'll have to allow countless others to telecommute, too, and soon the whole thing will get out of hand.

While it sounds like a valid objection, it doesn't hold up under direct scrutiny.

First of all, telecommuting is not a bad thing. Telecommuters tend to be more loyal and more productive, generally making it beneficial for employers if more people began to telecommute.

Secondly, I've never heard a single advocate of telecommuting seriously represent that every employee should be permitted to work this way. Obviously, certain jobs can't be done at a distance from the office. But even more to the point, certain people don't have the self-discipline, the motivation, the proven track record, or even the inclination to work from home during a portion of their work week.

In addition, I've never heard anyone suggest that telecommuting be made company policy without applying some standards and criteria, and without providing some training for those who are going to telecommute (as well as those who are going to supervise them). Well-conceived and well-written standards, criteria, and

continued on page 105

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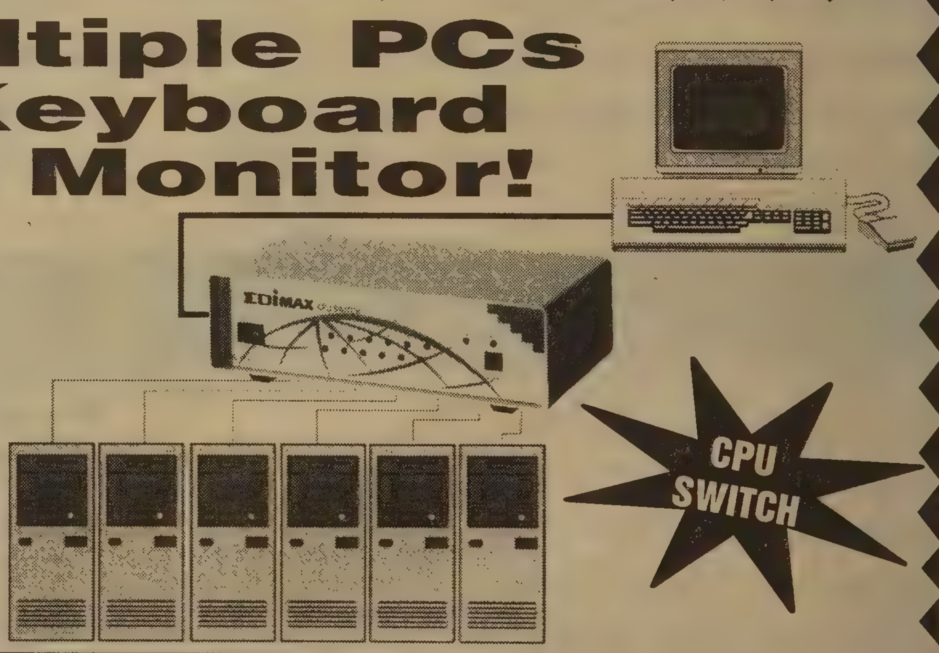

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- ONE HP LaserJet 5M WorkGroup Printer w/10BaseT Connection to Server
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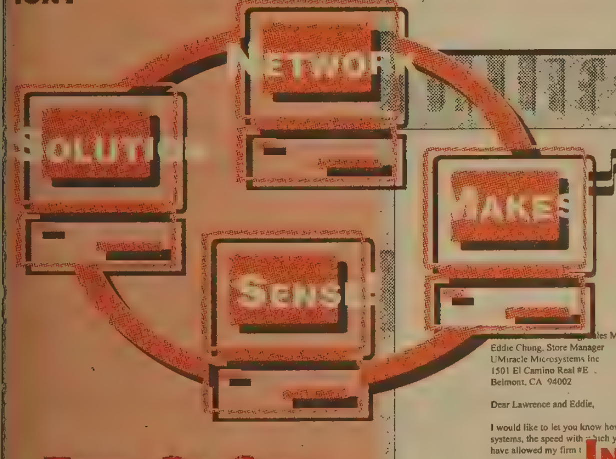

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- ONE HP LaserJet 5SiMX Departmental Printer w/10BaseT Connection to Server
- FOUR 3COM 3C250 12-Port 100BaseT Stackable Hubs
- APC Smart-UPS SU1000Net Un-interruptable Power Supply w/ Setup
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- OnSite Windows NT WorkGroup Network Printer & Resources Setup

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INTERNET PROVIDES POWER TO BUSINESS USERS LIKE YOU! EXPLORING YOUR IDEA, GO TO INTERNET! RESEARCHING YOUR PROJECT, GO TO INTERNET! MAKING AN INTERNATIONAL CALL, GO TO INTERNET! ONCE YOU HAVE IT, YOU WILL HOOK ON IT. AND TO HOOK ON IT CHEAP, YOU NEED ISDN INTERNET ACCESS FROM UMIRACLE. WE WILL SETUP YOUR ISDN LINE, GET YOU THE RIGHT ROUTER, SETUP YOUR ISP ACCESS ACCOUNT, SETUP YOUR EMAIL ADDRESSES, CONFIGURE YOUR NETWORK WITH TCPIP PROCOTOL, ALL FOR ONE PACKAGE PRICE! CALL UMIRACLE NETWORK SOLUTION FOR DETAILS!

FAX SERVER SOLUTION

DON'T WAIT IN LINE FOR YOUR TURN TO FAX, DON'T HAND-WRITE YOUR COVER PAGE! FAX DIRECTLY FROM YOUR DESKTOP, NEATLY AND PROFESSIONALLY! WITH THE RIGHT FAX SOLUTION, YOU CAN RECEIVE YOUR FAX AND PRINT RIGHT TO YOUR LASER PRINTER, REPRINT YOUR 6 MONTHS OLD FAX, FAX YOUR DOCUMENTS FROM YOUR WINDOWS APPLICATION JUST LIKE PRINTING. ALL VIA ONE LINE, ONE MODEM! FORGET ABOUT BRINGNG A LINE AND A MODEM TO EVERY DESKTOP! WITH WINFAX PRO FOR NETWORKS (NON-DELICATED) AND SATISFAXTION FAXBOARD, AND UMIRACLE NETWORK SOLUTION TECHNICAL EXPERTISE, WE SURE CAN GET YOU THE BEST SOLUTION! CALL US FOR DETAILS!

3-KEYSTROKE RECOVERY BACKUP SOLUTION

YOU THINK YOU GOT IT ALL BACKED UP? NOT UNTIL THE DAY YOUR SERVER CRASHES YOU WILL FIND OUT YOU HAVE TO 1.) TROUBLESHOOT AND REPLACE YOUR DEFECTIVE COMPONENTS, 2.) RELOAD YOUR NOS, DRIVERS, APPICATIONS AND BACKUP SOFTWARE, 3.)RESTORE YOUR DATA FILES FROM BACKUP, 4.)RECONSTRUCT YOUR USER AND PRINTER ACCOUNTS, AND 5.)EXPECT MISSING AND CORRUPTED DATA HERE AND THERE! WHY? BECAUSE YOUR BACKUP SOFTWARE BACKS UP ONLY DATA FILES, NOT THE OPENED FILES, NOT THE SECURITY DATABASE OR PARTITION INFORMATION! BACKUP SOFTWARE DON'T MAKE SENSE UNTIL NOW! WITH REPLICA V3 BY STAC, YOU CAN BACKUP YOUR HARDDRIVE PARTITIONS AS OBJECTS, RESCUE YOUR DISASTER WITH 3 KEYSTROKES FROM A RECOVERY DISK, EVEN FROM A LOW-LEVEL-FORMATED HARDDRIVE, AND BRING YOUR SERVER UP IN HOURS! TO FIND OUT HOW WE CAN PROVIDE THIS SOLUTION, CALL US NOW!

WE MONITOR THE TRENDS OF EVERY TECHNOLOGY IN THE INDUSTRY AND GET YOU THE BEST! GUARANTEE WE WILL TAKE IT BACK IF IT DOESN'T WORK!

FREE ON-SITE CONSULTATION
WE SERVE ENTIRE BAY-AREA

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Call 1888-NET-OKAY
638-6529
Miracle Microsystems Corporate Office
1063 Fremont Blvd. Fremont CA 94538
hone: 510-226-3666 Fax: 510-226-6758

QUIPMENT BUSINESS LEASE APPLIES TO EQUIPMENT, CABLING & SETUP OR ALTOGETHER. LEASE PAYMENT IS BASED ON $1 PURCHASE PURCHASE ION. ONE TIME $75 DOCUMENTATION FEE ARE REQUIRED. TWO ADVANCED ENTS REQUIRED IF APPROVED. TAXES ARE NOT YET INCLUDED.

JOIN OUR WINNING TEAM

ABIT Jumperless TX

- ABIT Office Pro TX-5 430TX PCI 512K Motherbrd, w/ 4 PCI BusMaster E-IDEs, HiSpd I/O
- Genuine AMD K5® or K6® Processor w/ Cooling Fan
- 16MB 168Pin 10ns SDRAM DIMM
- 1.44MB Floppy Drive
- 2.1GB Quantum FireBall SE•32100A UltraDMA IDE HD
- Trident 9685 PCI 1MB MPEG+AVI Video Card
- 14" ShamRock 1Kx768NI Pwr-Saving Monitor
- GigaStar Series AT type Mini Tower 230W PS
- Mitsumi 104 Key Enhanced Win95 Keyboard
- Logitech 2-Button Serial Mouse w/ Pad
- Legitimate MS Windows 95 + Manual
  + installed + fully-configured

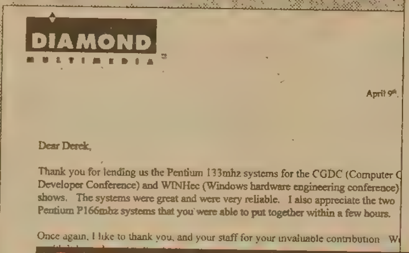
AMD	K6mmx
P166 $711	
P200 $756	
P233 $777	

ASUS TX97 AMD K5/K6

- ASUS TX97 430TX, 512K Cache, Pentium/MMX/K5/K6/Cyrix CPU supported, 168Pin DIMM, onbrd Ultra-IDE, FD, HiSpd I/O, AT Size
- AMD® K5/K6 Processor w/ Smart Cooling Fan
- 16MB 168Pin 10ns SDRAM DIMM
- 1.44MB Floppy Drive
- 2.1GB Quantum FireBall SE32100A UltraDMA IDE HD
- Mitsumi FX162T 16X Speed Internal ATAPI IDE CD-ROM
- Trident 9685 PCI 2MB MPEG+AVI Video Card
- 15" ShamRock 1280x1024NI Pwr-Saving Monitor
- GigaStar Series At Type Mini Tower 230W PS
- Mitsumi 104 Key Enhanced Win95 Keyboard
- Logitech 2-Button Serial Mouse w/ Pad
- Legitimate MS Windows 95 + Manual+ installed + fully-configured

AMD	K6mmx
P166 $857	
P200 $902	
P233 $923	

Call For Pentium 166/200/233MHz/MMX upgrade

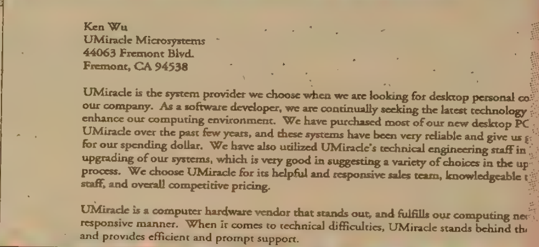

DIAMOND MULTIMEDIA

April 9th

Dear Derek,

Thank you for lending us the Pentium 133mhz systems for the CGDC (Computer G Developer Conference) and WINHec (Windows hardware engineering conference) shows. The systems were great and were very reliable. I also appreciate the two Pentium P166mhz systems that you were able to put together within a few hours.

Once again, I like to thank you, and your staff for your invaluable contribution W


Ken Wu
UMiracle Microsystems
44063 Fremont Blvd.
Fremont, CA 94538

UMiracle is the system provider we choose when we are looking for desktop personal co our company. As a software developer, we are continually seeking the latest technology enhance our computing environment. We have purchased most of our new desktop PC UMiracle over the past few years, and these systems have been very reliable and give us g for our spending dollar. We have also utilized UMiracle's technical engineering staff in upgrading of our systems, which is very good in suggesting a variety of choices in the up process. We choose UMiracle for its helpful and responsive sales team, knowledgeable t staff, and overall competitive pricing.

UMiracle is a computer hardware vendor that stands out, and fulfills our computing ne responsive manner. When it comes to technical difficulties, UMiracle stands behind th and provides efficient and prompt support.

at very

ASUS P2L97 Pentium II AGP

- ASUS P2L97 Intel Pentium II motherboard - 233-333Mhz support, 440LX AGPset with Accelerated Graphics Port Connector for optimal Video Graphics, 5 PCI/2 ISA/1 AGP slots,DIMM, Onbrd I/O, UltraDMA IDE, ATX
- Genuine Intel Pentium® II Processor w/Cooling Fan
- 32MB 168Pin 10ns SDRAM DIMM
- 1.44MB Floppy Drive
- 3.2GB Quantum FireBall SE33200A UltraDMA IDE HD
- Mitsumi 24X Speed Internal ATAPI IDE CD-ROM
- Yamaha 3D Stereo Sound Card w/ Wavetable Full Duplex
- ATI Xpert@Work AGP RAGE PRO 4MB SGRAM Video Card
- 15" Hitachi CM-500 .28DP 1280x1024NI Monitor
- GigaStar ATX style Medium Tower 235W ATX PS
- KeyTronic 104 Key Win95 PS2 Keyboard
- Logitech 3-Button MouseMan PS/2 Mouse w/ Pad
- Pair of 60Watt Stereo Speakers
- Legitimate MS Windows 95 Full CD + Manual
  + installed + fully-configured

Intel Pentium® II

233MHz	$1391
266MHz	$1639
300MHz	$1856

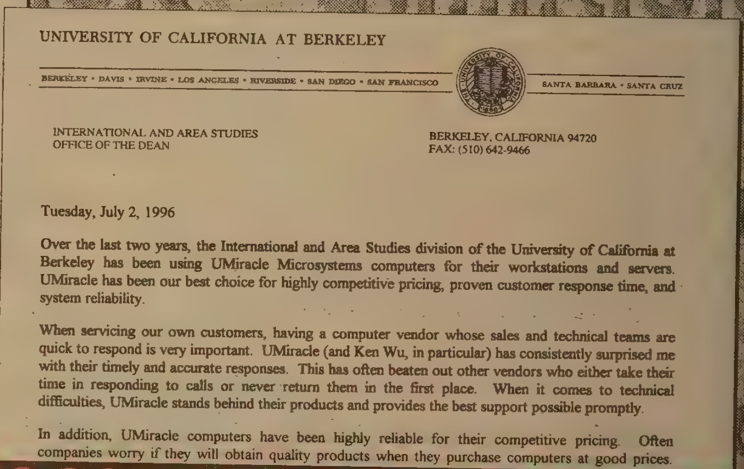
Bundled with AGP Video card!

Intel Anchorage w/Audio

- Intel Anchorage AN430TX 512K Cache onbrd,MMX CPU support, 4 PCI+3 ISA slots,DIMM,upto 256MB, built-in PCI-IDE ports, FD, HiSpd I/O,Yamaha OPL4 wavable audio stereo sound
- Genuine Intel Pentium® Processor w/ Cooling Fan
- 16MB 168Pin 10ns SDRAM DIMM
- 1.44MB Floppy Drive
- 3.2GB Quantum FireBall SE33200A UltraDMA IDE HD
- Mitsumi FX162T 16X Speed Internal ATAPI IDE CD-ROM
- ATI Xpert@Work PCI RAGE PRO 4MB SGRAM Video Card
- 15" Hitachi CM-500 .28DP 1280x1024NI Monitor
- GigaStar ATX style Medium Tower 235W ATX PS
- Mitsumi 104 Key Enhanced Win95 Keyboard
- Logitech MouseMan PS/2 Mouse w/ Pad
- Pair of 60Watt Stereo Speakers
- Legitimate MS Windows 95 Full CD + Manual
  + installed + fully-configured

Intel Pentium®

166MHz	$1130
200MHz	$1187
mmx166	$1143
mmx200	$1240
mmx233	$1329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INTERNATIONAL AND AREA STUDIES
OFFICE OF THE DEAN

BERKELEY, CALIFORNIA 94720
FAX: (510) 642-9466

Tuesday, July 2, 1996

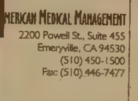
Over the last two years, the International and Area Studies division of the University of California at Berkeley has been using UMiracle Microsystems computers for their workstations and servers. UMiracle has been our best choice for highly competitive pricing, proven customer response time, and system reliability.

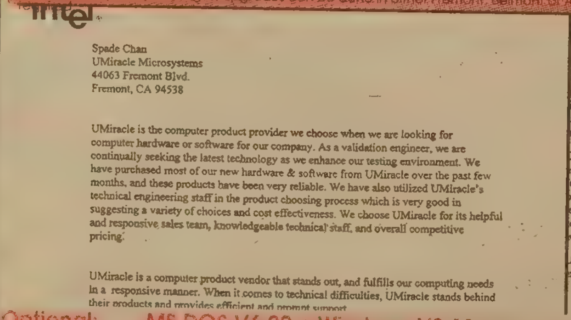
When servicing our own customers, having a computer vendor whose sales and technical teams are quick to respond is very important. UMiracle (and Ken Wu, in particular) has consistently surprised me with their timely and accurate responses. This has often beaten out other vendors who either take their time in responding to calls or never return them in the first place. When it comes to technical difficulties, UMiracle stands behind their products and provides the best support possible promptly.

In addition, UMiracle computers have been highly reliable for their competitive pricing. Often companies worry if they will obtain quality products when they purchase computers at good prices.

OUR SERVICE, OUR COMMITMENT

[illegible] switches setup configured. Windows 95/NT and all [illegible] software installed [illegible] high resolution [illegible] monitor mode tested and continuously burned in for 48 hours on all components and finally [illegible] inspected for trouble free operation. All systems are to be inspected by customer at pick up time.
Most advertised standard configurations have been pre-built, burn-in tested and are ready to be picked up or delivered within 60 minutes IN FREMONT MAIN OFFICE - Please allow more time for minor configuration changes. Standard delivery time is 72 hours. Free delivery area includes local area within 30 minutes driving distance. No delivery on weekends. Delivery out of local area will be charged up to $30 freight.
Most components come with over 1 year manufacturer warranty - First year will be covered by UMiracle. Warranty after the first year will be covered by component manufacturers.
While-you-wait immediate service should there be any necessary warranty repair. If we couldn't solve the problem, another system will be built (at our discretion, if purchased within 30 days.)
All pickups, repairs, exchanges, upgrades can be done in either Fremont, Belmont or Albany store. Original invoices & records re

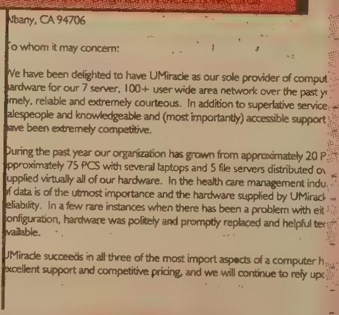

AMERICAN MEDICAL MANAGEMENT
2200 Powell St., Suite 455
Emeryville, CA 94530
(510) 450-1500
Fax: (510) 446-7477


intel

Spade Chan
UMiracle Microsystems
44063 Fremont Blvd.
Fremont, CA 94538

UMiracle is the computer product provider we choose when we are looking for computer hardware or software for our company. As a validation engineer, we are continually seeking the latest technology as we enhance our testing environment. We have purchased most of our new hardware & software from UMiracle over the past few months, and these products have been very reliable. We have also utilized UMiracle's technical engineering staff in the product choosing process which is very good in suggesting a variety of choices and cost effectiveness. We choose UMiracle for its helpful and responsive sales team, knowledgeable technical staff, and overall competitive pricing.

UMiracle is a computer product vendor that stands out, and fulfills our computing needs in a responsive manner. When it comes to technical difficulties, UMiracle stands behind their products and provides efficient and prompt support.


lbany, CA 94706

o whom it may concern:

Ve have been delighted to have UMiracle as our sole provider of comput ardware for our 7 server, 100+ user wide area network over the past y mely, reliable and extremely courteous. In addition to superlative service alespeople and knowledgeable and (most importantly) accessible support ave been extremely competitive.

During the past year our organization has grown from approximately 20 P pproximately 75 PCS with several laptops and 5 file servers distributed o upplied virtually all of our hardware. In the health care management indu f data is of the utmost importance and the hardware supplied by UMirac eliability. In a few rare instances when there has been a problem with eit onfiguration, hardware was politely and promptly replaced and helpful te vailable.

JMiracle succeeds in all three of the most import aspects of a computer h xcellent support and competitive pricing, and we will continue to rely up

ASUS P2L97-DS Dual PII AGP

- ASUS P2L97-DS Intel Pentium II motherboard - 233-333Mhz Dual Pentium II support, 440LX AGPset with Accelerated Graphics Port Connector for optimal Video Graphics, onbrd Adaptec 7880 U-Wide SCSI ,5 PCI/2 ISA/1 AGP slots,DIMM, Onbrd I/O, UltraDMA PCI IDE, ATX format
- Genuine Intel Pentium® II Processor(s) w/Cooling Fan(s)
- 32MB 168Pin 10ns SDRAM DIMM
- 1.44MB Floppy Drive
- 3.2GB Quantum FireBall SE3320OS Ultra-SCSI-2 HD
- Mitsumi 24X Speed Internal ATAPI IDE CD-ROM
- Yamaha 3D Stereo Sound Card w/ Wavetable Full Duplex
- ATI Xpert@Work AGP RAGE PRO 4MB SGRAM Video Card
- 17" Hitachi CM-620 .28DP 1280x1024NI Monitor
- GigaStar ATX style Medium Tower 235W ATX PS
- KeyTronic 104 Key Win95 PS/2 Keyboard
- Logitech 3-Button MouseMan PS/2 Mouse w/ Pad
- Pair of 80Watt Stereo Speakers
- Legitimate MS Windows 95 Full CD + Manual
  + installed + fully-configured

Bundled with AGP Video card!

Single Pentium II	
233MHz	$1875
266MHz	$2123
300MHz	$2340
Dual Pentium II	
233MHz	$2159
266MHz	$2654
300MHz	$3089

Optional:		
	MS DOS V6.22 + Windows V3.11	Add$10
	MS DOS V6.22 + Windows for WorkGroup V3.11	Add$30
	Windows NT 4.0 Workstation/Server	Add$90/$560

UMiracle

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44063 Fremont Blvd. Fremont CA 94538
Phone:510-226-3666 Fax:510-226-6758
1035 San Pablo Ave#1. Albany CA 94706
Phone:510-526-2626 Fax:510-526-0273
1501#E El Camino Rl. Belmont CA 94002
Phone.650-592-3333 Fax:650-592-2919
URL. WWW.UMIRACLE.COM
Email. sales@umiracle.com

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Albany Store
Ph:510-526-2626
1035 San Pablo Ave. #1
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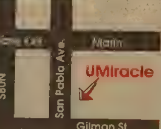
CLOSED ON SUNDAYS
Yes! Open on Sunday!

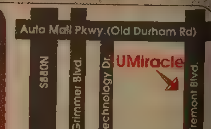


Off I-80 Albany Exit, go toward the hill and turn right on San Pablo Avenue. We are facing U.C. Village. Or off I-80 Gilman St, go toward the hill and make a left turn on San Pablo Ave.

Belmont Store
Ph:415-592-3333
1501 El Camino Real #E
[illegible]
Sunday 10:30AM-6:00PM
Yes! Open on Sunday!

From north or south, Off I-101 Ralston Ave, go towards west, left on El Camino Real and make a U-turn ASAP. We are on your right.

Fremont Main
Ph:510-226-3666
44063 Fremont Blvd
Fremont CA 94538
[illegible]
Yes! Open on Sunday!



Off I-880 Auto Mall Pkwy East, pass Technology Drive and make a right on Fremont Blvd, (or off 680 Durham, go west, pass Osgood Rd, then make a left on Fremont Blvd.) first driveway on your right.

AND BE A WINNER!

Intel AL440LX Pentium II

- Intel AL440LX Pentium II Motherboard - 233Mhz & above CPU support, 440LX AGPset with Accelerated Graphics Port Connector for optimal Video Graphics, Yamaha OPL4 hardware wavetable audio,3 PCI/ 2 ISA/1 AGP slots, DIMM, Onbrd I/O, UltraDMA PCI IDE
- Genuine Intel Pentium® II Processor w/ Cooling Fan
- 32MB 168Pin 10ns SDRAM DIMM w/EPROM chip
- 1.44MB Floppy Drive
- 3.2GB Quantum FireBall SE33200A UltraDMA IDE HD
- Mitsumi 24X Speed Internal ATAPI IDE CD-ROM
- ATI Xpert@Work AGP RAGE PRO 4MB SGRAM Video Card
- 17" Hitachi CM-620 .28DP 1280x1024NI Monitor
- GigaStar ATX style Medium Tower 235W ATX PS
- Liton SK6000 Ergonomic Win95 PS/2 Keyboard
- Logitech 3-Button MouseMan PS/2 Mouse w/ Pad
- Pair of 80Watt Stereo Speakers
- Legitimate MS Windows NT V4.0 Workstation CD + Manual + Installed + fully-configured

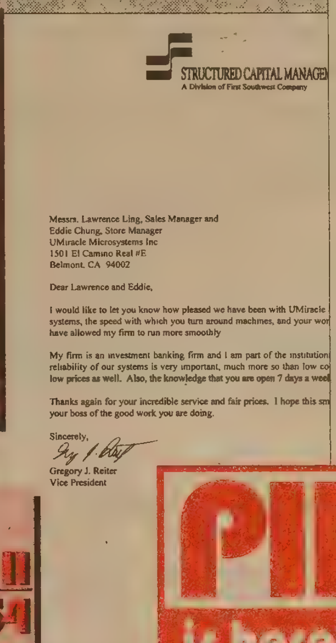
Intel Pentium® II

233MHz $1691

266MHz $1938

300MHz $2156

Bundled with AGP Video card!



STRUCTURED CAPITAL MANAGEN
A Division of First Southwest Company

Messrs. Lawrence Ling, Sales Manager and
Eddie Chung, Store Manager
UMiracle Microsystems Inc
1501 El Camino Real #E
Belmont, CA 94002

Dear Lawrence and Eddie,

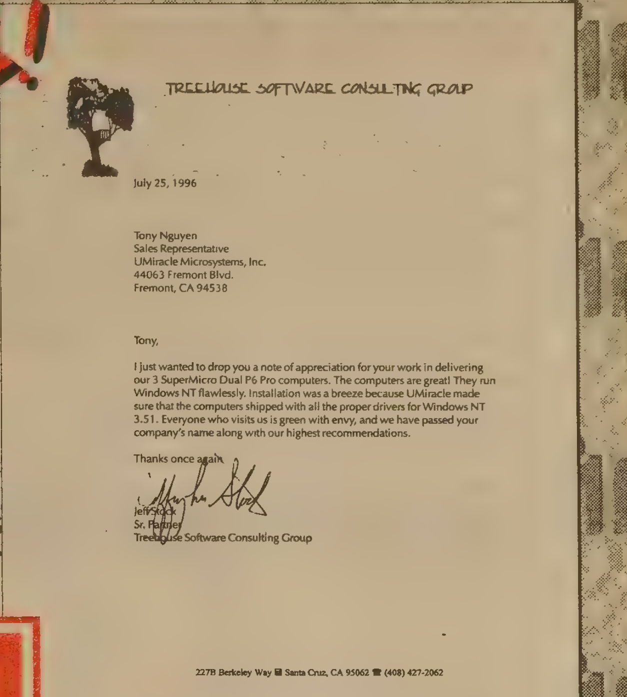
I would like to let you know how pleased we have been with UMiracle
systems, the speed with which you turn around machines, and your wor
have allowed my firm to run more smoothly

My firm is an investment banking firm and I am part of the institution
reliability of our systems is very important, much more so than low co
low prices as well. Also, the knowledge that you are open 7 days a wee

Thanks again for your incredible service and fair prices. I hope this sm
your boss of the good work you are doing.

Sincerely,

Gregory J. Reiter
Vice President



TREEHOUSE SOFTWARE CONSULTING GROUP

July 25, 1996

Tony Nguyen
Sales Representative
UMiracle Microsystems, Inc.
44063 Fremont Blvd.
Fremont, CA 94538

Tony,

I just wanted to drop you a note of appreciation for your work in delivering our 3 SuperMicro Dual P6 Pro computers. The computers are great! They run Windows NT flawlessly. Installation was a breeze because UMiracle made sure that the computers shipped with all the proper drivers for Windows NT 3.51. Everyone who visits us is green with envy, and we have passed your company's name along with our highest recommendations.

Thanks once again,

Jeff Stock
Sr. Partner
Treehouse Software Consulting Group

227B Berkeley Way ■ Santa Cruz, CA 95062 ☎ (408) 427-2062

Intel DK440LX PII Dual

- Intel DK440LX Dual Pentium II Motherboard 82440LX AGPset - 233Mhz & above Dual CPU support, 440LX AGPset w/ Accelerated Graphics Port Connector for optimal Video Graphics,4 DIMM slots,Onbrd I/O,UltraDMA PCI IDE,onbrd Intel Pro10/100BT Ethernet/ Adaptec 7895 Dual Channel SCSI w/ RAIDport slot
- Intel Pentium® II 512K Processor(s) w/ Cooling Fan(s)
- 64MB 168Pin 10ns SDRAM DIMM w/EPROM chip
- 1.44MB Floppy Drive
- 3.2GB Quantum FireBall SE33200S Ultra-SCSI-2 HD
- Mitsumi 24X Speed Internal ATAPI IDE CD-ROM
- ATI Xpert@Work AGP RAGE PRO 8MB SGRAM Video Card
- 19" Hitachi CM-751MU .22DP 1600x1200NI Monitor
- Premium ATX style Full Tower 235W ATX PS
- Liton SK6000 Ergonomic Win95 Keyboard
- Logitech 3-Button MouseMan Serial Mouse w/ Pad
- Pair of 120Watt Stereo Speakers
- Legitimate MS Windows NT V4.0 Workstation CD + Manual + Installed + fully-configured

Bundled with AGP Video card!

Single Pentium II

233MHz $2754

266MHz $3002

300MHz $3219

Dual Pentium II

233MHz $3038

266MHz $3533

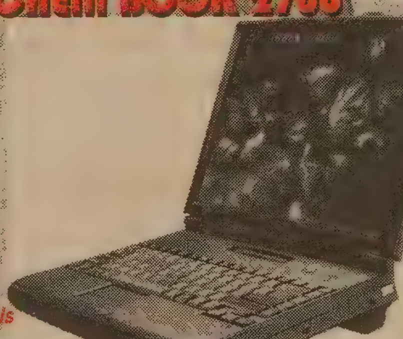
300MHz $3968

PII is here!

MULTIMEDIA NOTEBOOKS

NoteBook Options:		
	MS DOS V6.22 + Windows V3.11	Add$100
	MS DOS V6.22 + WFWG V3.11	Add$120
	Windows 95 CD Full OEM Version	Add$90
	Windows NT 4.0 Workstation/Server OEM	Add$180/$650

CHEM BOOK 2700



CHEMBOOK 2700 ■ P5 MMX ■ TX-Chipset ■ Active 14.2" 1kx768 ■ 32MB EDO ■ 512K L2 Cache ■ 1.44FD ■ 20X CDROM ■ 2MB EDO Video ■ TouchPad ■ 3D Stereo Sound ■ RCA Jack ■ USB.1S/1P ports ■ Li-ion Battery...

Active Matrix 14.2"	(2.1/3.0/4.0GB)
■Pentium-166MMX	$2441/$2565/$2729
■Pentium-200MMX	$2529/$2653/$2817
■Pentium-233MMX	$2626/$2750/$2915

CHEM 2700 NoteBook Options	
8/16MB 144pin EDO	$48/72
32/64MB 144pin EDO	$120/275
Auto Adaptor 12V	$75
AC Adaptor	$80
Li-ion Internal Battery	$185
Port Replicator	$125

See WWW.CHEMUSA.COM for details

Harddrives/PCMCIA cards-	
1.4/2.1GB Slim HD	$190/220
3.0/4.0GB Slim HD	$355/530
5.0GB 2.5" 19mm HD	$665
33.6K/56K modem	$89/135
Ethernet NE2000 Comb	$80

CHEMBOOK 9780 ■ CPU upto [illegible] ■ 430TX Chipset ■ Active Screen 12.1"/14.1" w/512k Cache ■ Upto128MB SDRAM ■ Removeable 1.44FD ■ [illegible] CDROM ■ 4MB EDO VRAM ■ Li-ion Battery ■ 3D Surround Stereo Sound ■ Video In/Out ■ USB/1S/1P ■ Infrared port...

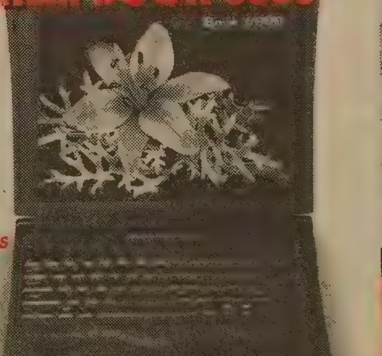
(3.0/4.0/5.0GB HD)	Active Matrix 12.1"	Active Matrix 14.1"
■ P5-166Mhz MMX+32MB	$2168/$2333/$2456	$2768/$2933/$3056
■ P5-200Mhz MMX+32MB	$2256/$2421/$2544	$2856/$3021/$3144
■ P5-233Mhz MMX+32MB	$2354/$2518/$2642	$2954/$3118/$3242

CHEM 9780 NoteBook Options	
16/32MB SDRAM	$80/140
64/128MB SDRAM	$285/$550
Int. VoiceFaxModem 56K	$150
Li-Ion 2nd Battery	$185
Docking Station	$449
Port Duplicator	$175

See WWW.CHEMUSA.COM for details

CHEM BOOK 9780

CHEM BOOK 6000



CHEMBOOK 6000 ■ New Intel (IMM) 233MMX CPU ■ 13.3" Active XGA ■ 16MB SDRAM onbrd ■ 430TX/512K Cache ■ UDMA-IDE ■ 20X CDROM ■ 2MB 128Bit Video ■ TouchPad ■ 3D Stereo Sound ■ S-VideoTVout ■ USB/1S/1P ■ Li-ion 58W ■ Health-Monitors...

With IMM 233MMX CPU	16MB	32MB
2.1GB Slim HD	$3502	$3575
3.0GB Slim HD	$3626	$3697
4.0GB Slim HD	$3790	$3863

CHEM 6000 NoteBook Options	
16/32MB SDRAM	$80/140
64/128MB SDRAM	$285/$550
Others	$call

See WWW.CHEMUSA.COM for details

Also available ChemBook 7000 Series with 15.1" Active Matrix Display! Call for Details and Availability!!!

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UMiracle
UMiracle Microsystems

What is RAID?

RAID is an acronym for Redundant Array of Inexpensive (or Independent) Disks. A RAID array is a collection of drives which collectively act as a single storage system, which can tolerate the failure of a drive without losing data, and which can operate independently of each other. Among all RAID implementations, AAA-130 series, the latest Adaptec RAID 5 solution, is the most cost-effective way to protect your data. If the data in your file server is vital to your survival of your business, RAID-5 is the way to go!

Thunder 2 Dual PII

- TYAN Thunder-2 ATX S1696DLUA Dual Pentium II 233-300 MHz System Board - 1 AGP+5 PCI+2 ISA Slots, 4 168Pin DIMM for Max 1GB, Onbrd Adaptec 7895 dual channel U-Wide SCSI with RAIDport option, Yamaha PCI Wavetavle sound, Super IO/FD/IDEs/USBs/PS2, Flash AMI BIOS
- Intel Pentium® II CPU(s) w/ Cooling Fan(s)
- 64MB 168Pin 10ns SDRAM DIMM w/ EPROM
- 1.44MB Floppy Drive
- Three 3.2GB Quantum FireBall SE33200S Ultra-SCSI-2 HDs
- Mitsumi FX162T 16X Speed Internal ATAPI IDE CD-ROM
- Trident 9685 PCI 1MB MPEG+AVI Video Card
- 14" ShamRock 1Kx768NI Pwr-Saving Monitor
- GigaStar ATX style Medium Tower 235W ATX PS
- KeyTronic 104 Key Win95 PS/2 Keyboard
- MicroSoft Ergonomic PS/2 Mouse w/ Pad

[illegible] Server CD

[illegible]

Call for AGP Video card UPGRADE!

PII is here!

Single Pentium II

233MHz $2627

266MHz $2875

300MHz $3092

Dual Pentium II

233MHz $2911

266MHz $3406

300MHz $3841

RAID-5 AMI Quad P6

- AMI (American Megatrends, Inc) Goliath Quad Pentium® Pro Processor EISA/PCI motherboard - U.S. designed & made 180/200MHz (or higher) 1/2/4 processors supported, easy processor upgrade thru CPU based board approach, 1GB memory max onboard with 168pin slots, 4 way interleave structure for max performance ECC supported, 168Pin DIMM supported, Intel 82450GX chipset, AMI Green Flash BIOS, 6 PCI + 4 EISA slots, integrated I/O w/ 1P/2S/FD/ IDEs/PS2 mouse
- Genuine Intel Pentium® Pro Processor(s) w/ Cooling Fan(s)
- 64MB=32MBx2 168Pin 4Mx72 EDO ECC Buffered DIMM
- 1.44MB Floppy Drive
- Mitsumi FX162T 16X Speed Internal ATAPI IDE CD-ROM
- DPT SmartRAID IV RAID-5 PM-3334UW/2 UWide SCSI PCI 2 channels Controller w/16MB ECC cache for protection
- Five 3.2GB Quantum FireBall SE33200S Ultra-SCSI-2 HDs
- Trident 9685 PCI 1MB MPEG+AVI Video Card
- 14" ShamRock 1Kx768NI Pwr-Saving Monitor
- Heavy-Duty Server Case Model LT-18 supporting 11 drive bays, 26"x10"x25", removable front & side doors, Lockable front door for security, "snap-in" drive mounts, swing-out feet
- 400W AT Size Turbo Power Supply special-designed for AMI Goliath with 12V/5V/3.3V DC output
- KeyTronic 104 Key Win95 PS/2 Keyboard
- MicroSoft Ergonomic Serial Mouse w/ Pad

[illegible] Server CD

[illegible] configured

P6⁴ is here!

ULTRA WIDE

40MB/S Ready!!!

Intel Pentium® Pro

Dual 200MHz 256/512k

$9801/$10824

Quad 200MHz 256/512k

$13439/$15483

LOOKING FOR YOUR DREAM MACHINE AT THE CHEAPEST PRICE? SHOPPING FOR A PC IN THIS RAZOR-THIN-PROFIT INDUSTRY IS DANGEROUS BECAUSE 70% OF THE DEALERS WON'T LIVE TILL THE FOURTH YEAR IN BUSINESS, MOST SELL 3 OR 4 MACHINES A WEEK WITHOUT KNOWING WHAT THEY ARE SELLING AND 99% DON'T WANT TO SEE ANY MACHINE COMING BACK AFTER YOU WALK OUT OF THE DOOR. AT UMIRACLE, WE BUILD HUNDREDS OF PC'S EVERY WEEK. WE TEST EVERY POSSIBLE COMBINATIONS OF SOFTWARE AND HARDWARE FOR COMPATIBILITY, AND WE STAND BEHIND YOUR PC'S LIFETIME LONG! WHY? BECAUSE WE LOVE YOUR PC AS MUCH AS YOU DO! COME BY AND VISIT ONE OF OUR STORES AND YOU WILL FIND OUT WHY YOU WILL BE THE WINNER!

TIGER PII RAID⁵ Server

- Tyan Tiger Single ATX (S1692S) - Pentium II board, 233Mhz & above CPU support, 440LX AGPset with Accelerated Graphics Port Connector for optimal Video Graphics, 3 PCI/2 ISA/1 AGP slots, DIMM, Onbrd I/O, UltraDMAIDE, ATX
- Adaptec AAA-131 RAID 5 Ultra-Wide Adapter with 1MB Cache onbord
- Genuine Intel Pentium® II Processor(s) w/ Cooling Fan(s)
- 32MB 168Pin 10ns SDRAM DIMM w/ EPROM
- 1.44MB Floppy Drive
- Mitsumi FX162T 16X Speed Internal ATAPI IDE CD-ROM
- Four 3.2GB Quantum FireBall SE33200S Ultra-SCSI-2 HDs
- Trident 9685 PCI 1MB MPEG+AVI Video Card
- 14" ShamRock 1Kx768NI Pwr-Saving Monitor
- GigaStar ATX style Full Tower 235W ATX PS
- KeyTronic 104 Key Win95 PS/2 Keyboard
- MicroSoft Ergonomic Serial Mouse w/ Pad
- Legitimate MS Windows NT V4.0 5-user Server CD
  - Manual + installed + fully configured

Pentium II

233MHz $2870

266MHz $3117

300MHz $3335

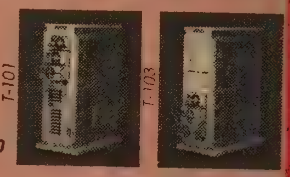
PII is here!

Call for AGP Video card UPGRADE!

NT ENHANCEMENTS

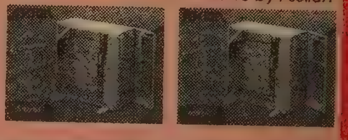
NT Guaranteed! All hardware listed below are guaranteed to be NT V4.0 compatible. We will make it right or your money back!

- **Memory**
  - 16/32/64/128MB 10ns SDRAM UnBuffered 168Pin DIMM for 430VX/TX .... $Call
  - 32/64/128MB 10ns SDRAM UnBuffered 168Pin DIMM w/EEPROM for 440LX .... $Call
  - 16/32/64/128MB 60ns DRAM ECC EDO Buffered 168Pin DIMM for 440FX .... $Call
- **RAID 5 Fast Ultra Wide SCSI-2 Host Adapter**
  (for RAID-5 implementation, an IDE HD as boot drive is recommended)
  - DPT SmartCache IV SCSI Adapter & RAID Series/SmartRAID IV RAID Series .... $Call
  - Mylex DAC960 Series Hi-Performance PCI RAID Controller with upto 3 UW SCSI channels supporting 45 HDs, upto 64MB Cache installable .... $Call
  - AMI Complete MegaRAID Solution including:SCSI RAID level 0,1,3,5,10,30, and 50 PCI Disk Array Controllers/FlexRAID/Advanced Management Software/Advanced Enclosure Management/Boot-Up Configuration/Power Console/General Alert .... $Call
- **High Capacity Tape Drive**
  - HP DAT SureStore 2000/5000 DAT8/DAT24/DAT24x6E Tape Drive .... $Call
  - HP DAT OEM C1534A-2GB/C1536A-4GB/1599A-8GB/C1554A-24GB/C5648A-144GB ..... $Call
  - Seagate Scorpion 24GB Internal DDS-3 DAT Drive $919
  - Seagate SDDS-DC DAT Internal Drive STD24000N 4GB/STD28000N 8GB .... $629/$73•9
  - Seagate 32GB DAT DDS-2 Autoloader 4586NP (4 DAT Tape Support) $935
  - Optional 12 Tape Magazine for above 4586NP upto 96GB (no tape) $135
- **High End Video Card - 3D Rendering/Graphic Animation/OpenGL**
  - Symmetric GLyder MAX/TX-16/TX-40/MP-40 3D Accelerator .... $Call
  - Dynamic Pictures OpenGL Accelerator Oxygen102/202/402 .... $Call
- **Server Chassis (T-101)/Disk Array Chassis (T-103): Dimension=13"x31"x22" w/Dual Redundancy & Hot Swappable Power Supplies .... $880/$880**
  - T-101: 12 DriveBays/Upto 2 PowerSupply 2x300W
    2x4.6" Smart Fans w/ Efficient Air Flow
    Full Size AT Motherboard FormFactor
  - T-103: 16 DriveBays/Upto 2 PowerSupply 2x300W
    2x4.6" Smart Fans w/ Efficient Air Flow
    Perfect RAID Disk-Array Sub-Chassis

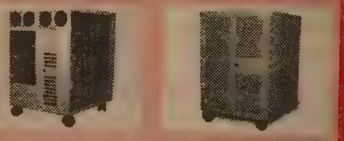


- **Server Chassis LT-18 By Axxion w/o Power Supply.....$480**
  - Full-size AT, Baby AT, oversize AT based boards, 11 drive bays (one 3.5" and four 5.25" exposed, six 5.25" hidden bays), Twelve slots, "snap-in" drive rails, secondary cooling fans, accepts standard power supply.
    Dimensions: 26" x 10" x 24.5" (DxWxH),

LT-18 by Axxion



- **Server Enclosure KS-1400 w/ Dual Redundant Hot-Swappable 300Wx2 PS.....$910**
  - Full-size AT, Baby AT, oversize AT based boards, 14 5.25" drive bays, Twelve slots, "snap-in" drive rails, 8 cooling fans,
    Dimensions: 20.5" x 16.25" x 23.75" (DxWxH)



KS-1400

- **CD-ROM Tower Subsystem Chassis**
  - 7 Plextor 14/32X PX-32TSI w/250W PS .. $1828
  - 7 Plextor 12/20X PX-20TSI w/250W PS .. $1660
  - 7 Toshiba 32X XM-6201B w/250W PS $1128
  - 7 Toshiba 12X XM-5701B w/250W PS $904
- **UPS Un-interrupted Power Supply**
  - APC SmartUPS SU420NET/SU620NET/SU700NET .... $249/$316/$379
  - APC SmartUPS SU1000NET/SU1400NET .... $509/$651
  - APC SmartUPS SU2200NET/SU3000NET .... $969/$1735
  - Viewsonic Opti UPS w/complete software 280/420/650/1000/1400 .... $112/162/254/353/469

Compatibility Guaranteed

Call for [illegible] hardware not listed above.

Windows NT 4.0 Server/Workstation

UMiracle

UMiracle Microsystems
44063 Fremont Blvd. Fremont CA 94538
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1035 San Pablo Ave#1. Albany CA 94706
Phone:510-526-2626 Fax.510-526-0273
1501#E El Camino Rl. Belmont CA 94002
Phone:650-592-3333 Fax:650-592-2919
URL:WWW.UMIRACLE.COM
Email: sales@umiracle.com

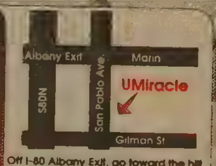
DISCOVER

ATM

VISA

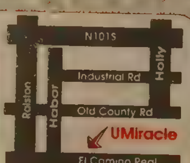
MasterCard

Albany Store
Ph:510-526-2626
[illegible]



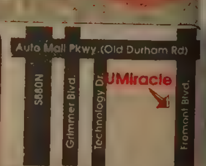
Off I-80 Albany Exit, go toward the hill and turn right on San Pablo Avenue. We are facing U.C. Village. Or off I-80 Gilman St, go toward the hill and make a left turn on San Pablo Ave.

Belmont Store
Ph:415-592-3333
1501 El Camino Real #E
[illegible]



From north or south, Off I-101 Ralston Ave, go towards west, left on El Camino Real and make a U-turn ASAP. We are on your right.

Fremont Main
Ph:510-226-3666
[illegible]



Off I-880 Auto Mall Pkwy East, pass Technology Drive and make a right on Fremont Blvd. (or off 680 Durham, go west, pass Osgood Rd, then make a left on Fremont Blvd.) first driveway on your right.

REAL STUFF, REAL QUALITY, REAL PRICES

Motherboard without CPU (Call for CPU Prices)

BIT IX-5 Jumperless 512K TX-chipset Motherboard Pentium 75-200Mhz/Cyrix® 86-200+/AMD K5/K6 DIMM+SIMM supported, 4 PCI+3 ISA slots, onbrd PCI-DE, HISpd I/O, FD, Flash BIOS w/ OverClock Setting AT Form	$90
BIT AX-5, same as above but in ATX Form	$95
BIT LX-6 Pentium II Jumperless 440LX-chipset Motherboard, 168Pin DIMM, AGP+4 PCI+3 ISA slots, onbrd UDMA-IDE, HiSpd I/O, FD, USB, Flash BIOS, Soft-Menu, ATX Form	$115
US TX97 Pentium® processor-based board - 430TX PCISet, Pipelined 512K nbrd, 75-200Mhz Pentium/MMX/AMD/Cyrix200+ CPUs, 4 PCI+4 ISA+1 ASUS MediaBus slots, 168Pin DIMMx3 support, onbrd Ultra-IDE, FD, HISpd I/O, Flash ward BIOS w/NCR SCSI Suppt, AT form factor	$142
US TX97-E same as TX97, plus 72PinSIMMx4 support	$142
US TX97-X Pentium® processor-based board - 430TX PCISet, Pipelined 512K nbrd, 75-200Mhz Pentium/MMX/AMD/Cyrix200+ CPUs, 4 PCI+4 ISA slots, 68Pin DIMMx3 support, CreativeLabs VIBRA PnP Audio, onbrd Ultra-IDE, FD, HiSpd I/O, USB, Flash Award BIOS w/NCR SCSI Suppt, ATX form factor	$165
US TX97-XE same as TX97X, plus 72PinSIMMx4 support	$170
US P2L97 Intel Pentium II motherboard - 233-333Mhz support, 440LX AGPset with Accelerated Graphics Port Connector for optimal Video Graphics, 5 PCI/2 ISA/1 AGP slots,DIMM, Onbrd I/O, UltraDMA PCI IDE, ATX format	$169
US P2L97-S same as P2L97, plus onbrd Adaptec 7880 U-Wide SCSI	$240
US P2L97-DS same as P2L97, plus onbrd Adaptec 7880 U-Wide SCSI and Dual Pentium II CPU support	$389
el Anchorge AN430TX Pentium MMX motherboard - Yamaha OPL4 hardware wavetable audio, 512K Cache, 430TX chpst, 3 ISA+3 PCI slots, onbrd PCIIDE, FD, I/O, PS/2 connectors, Flash AMI BIOS, 168Pin DIMM support upto 256MB, ATX form factor	$155
el Atlanta AL440LX Pentium II Motherboard - 233Mhz & above CPU support, 440LX AGPset with Accelerated Graphics Port Connector for optimal Video Graphics, Yamaha OPL4 hardware wavetable audio,3 PCI/2 ISA/1 AGP slots, DIMM, Onbrd I/O, UltraDMA PCI IDE, ATX format	$185
el Dakota DK440LX Dual Pentium II Motherboard 82440LX AGPset - 233Mhz & above Dual CPU support, 440LX AGPset w/ Accelerated Graphics Port Conntr for Video Graphics,4 DIMM slots,Onbrd I/O,UltraDMA PCI IDE,onbrd ntel Pro10/100BT Ethernet/Adaptec 7895 Dual SCSI w/RAIDport	$525
ntel Providence PR440FX Dual Pentium® Pro processor-based board - Intel 440FX PCISet, support Dual Pentium® Pro CPUs w/VRM, ECC EDO buffered 168Pin DIMM upto 512MB, Integrated LAN Controller Intel 82557 (EtherExpress® Pro/100B), Integrated UWide SCSI Adaptec® 7880 w/onbrd + External mini-68Pin Wide Connector, Integrated Audio - Crystal +Yamaha OPL3 FM Synthesizer 16bit StereoSound, 4 PCI+1 ISA slots, onbrd PCI Bus Master IDE ports,HiSpd I/O, FD, Flash AMI PnP BIOS	$300
AN Tahoe-A ATX S1684SA Pentium II 233-300 MHz System Board - 4 PCI + 4 ISA Slots, 6 72Pin SIMM for Max 512MB, Integrated Creative Labs Vibra 16 Audio, Onbrd Super IO/FD/IDEs/USBs/PS2, Flash Award BIOS (Also supports Pentium Pro CPU with optional Riser Card)	$220
AN Tahoe-2 ATX S1682D Dual Pentium II 233-300 MHz System Board - 5 PCI + 3 SA Slots, 8 72Pin SIMM for Max 512MB, Onbrd Super IO/FD/IDEs/USBs/PS2, Flash Award BIOS	$235
an Tiger Single ATX (S1692S) - Pentium II board, 233Mhz & above CPU support, 440LX AGPset with Accelerated Graphics Port Connector for optimal Video Graphics, 3 PCI/2 ISA/1 AGP slots, DIMM, Onbrd I/O, UltraDMAIDE, ATX	$175
an Tiger Dual ATX (S1692DL) - Dual PII board, same as Tiger Single	$275
an Thunder 2 ATX (S1696DLUA) - Dual Pentium II board w/ 440LX chpst, AGP, Yamaha® OPL3 & OPL4 Wavetable Sound On-board,Adaptec 7895 Dual SCSI w/RAIDport	$435
MI (American Megatrends, Inc) Goliath Quad Pentium® Pro Processor EISA/PCI motherboard - U.S. designed and made 180/200MHz (or higher) 1/2/4 processors supported, easy upgrade thru CPU based board approach, 1GB memory max onboard with 168 pin slots, 4 way interleave for max performance, ECC support, 168Pin DIMM support, 82450GX chpst, AMI Flash BIOS, 6 PCI+4 EISA slots, Integrated I/O w/ 1P/2S/FD/IDE, Full Size AT factor	
Above w/ two 200MHz Pentium Pro 256K CPUs	$5115
Above w/ four 200MHz Pentium Pro 256K CPUs & 2nd CPU baseboard	$7675

CPU & Memory (Prices subject to Change without notice)

tel Pentium® Pro processor 256K/512K 150/180/200Mhz	$Call
tel Pentium® II processor 233MHz/266MHz/300MHz 512K Cache	$Call
entium® P5-100/120/133/150/166/200/233MHz/MMX CPU	$Call
MD K5/K6/Cyrix®/IBM® 6x86-166+/200+/M2 CPU	$Call
56/512K Synchronous Pipelined Cache COAST module	$20/$25
2Pin SIMM - 32/36Bit-FP/EDO/Parity	$Call
6/32/64MB 168Pin SDRAM DIMM Unbuffered 10ns for TX/440FX/LX	$Call
2/64/128MB 168Pin SDRAM DIMM+EPROM/ECC UnBuffered 10ns 440LX	$Call

I/O Card/Controller Card

daptec 2940U Ultra SCSI/2940UW SCSI Controller	$155/$180
daptec NEW 2940U2W Ultra2 SCSI PCI Controller	$Call
daptec AAA-131/AAA-133 RAID 5 Ultra-Wide SCSI-2 Multi-Channel Host Adaptor w/1MB Cache onbrd	$360/$680
iamond Fireport 40 UW-SCSI PCI Controller - 68+50 pin SymBios Chipset	$175
iamond Fireport 20 UW-SCSI PCI Controller - 50pin SymBios Chipset	$149
xternal SCSI-2 50Pin Mini-68Pin Adapter for internal 50pin ribbon cable SCSI	$20
xternal Wide SCSI Mini-68Pin Adapter with 3-68pin-connector internal ribbon cable for any onboard internal 68pin Wide SCSI interface	$45

UMiracle

UMiracle Microsystems

Fast Wide SCSI-2 Internal Ribbon Cable, 68Pin, 2/3 connectors	$20/30
External SCSI Cables/Terminator Centronic/Mini/UltraDensity 50/68Pin	$Call

Network Card

Ethernet NE2000 ISA PnP/Softset 16Bit Combo/PCI Combo	$25/$40
Intel EtherExpress Pro 10/100 PCI ENET 32Bit 10-BT (PILA8465B)	$60
3COM Etherlink III 3C509B Combo	$70
3COM Etherlink XL 3C900 Parallel-Tasking PCI Combo	$78
3COM Fast Etherlink XL 3C905-TX Parallel-Tasking 100BT PCI	$65

Video Card

Trident 9685 Windows Accelerator PCI 1MB/2MB with MPEG and AVI Motion Video built-in	$30/40
ATI 3D ProTurbo PC2TV SGRAM 4MB/8MB	$120/$160
ATI All-In-Wonder 7-in-One TV, Video and Graphic multimedia,PC or TV Display, TV Tuner, w/ ATI's 3D RAGE II and ImpactTV chipset 4MB	$205
ATI Xpert@Work AGP/PCI RAGE PRO Chipset SGRAM DVD Acceleration, OpenGL Compliant, 4MB/8MB	$150/200
ATI Xpert@Play AGP RAGE PRO Chipset SGRAM DVD Acceleration, TV Out Features, 4MB/8MB	$169/225
ATI Xpert@Play PCI RAGE PRO Chipset SGRAM DVD Acceleration, TV Out Features, 4MB/8MB	$149/199
Matrox MGA Millennium II WRAM PCI 4MB/8MB	$170/$269
Matrox MGA Millennium II WRAM AGP 4MB/8MB	$175/$275
Memory module for Millennium II 4MB/8MB/12MB	$115/$185/$295
Matrox MGA Mystique 220 2MB/4MB SGRAM OEM	$99/125
Diamond VIPER V330 AGP 4MB SGRAM 2D/3D NVIDIA RIVA128 Chpst 128Bit Windows Accelerator Upgradable to DVD	$155
Diamond VIPER V330 PCI 4MB SGRAM 2D/3D NVIDIA RIVA128 Chpst 128Bit Windows Accelerator Upgradable to DVD	$155
Diamond FIRE GL1000 Pro 4MB/8MB AGP/PCI, SGRAM 2/3DLabs Permedia 2 Graphics Chipset	$145/$190

Monitor

14" ShamRock 1Kx768NIx0.28DP Digital Control Pwr-Saving Monitor	$145
15"/17" ShamRock 1280x1KNIx0.28DP Monitor	$195/$370
Hitachi NSA SuperScan Pro CM-500U 15" .28DP, 1280x1024	$285
Hitachi NSA SuperScan Pro CM-620U 17" .28DP, 1280x1024	$470
Hitachi NSA SuperScan Pro CM-751MU 19" .22DP, 1600x1200	$985
Hitachi NSA SuperScan Pro CM-800U 21" .22DP, 1600x1200x75Hz	$1325
Hitachi NSA SuperScan Elite CM-630U 17" .22DP, 1600x1280x69Hz	$569
Hitachi NSA SuperScan Elite CM-802U 21" .22DP, 1600x1280	$1490
Hitachi NSA SuperScan Elite CM-803U 21" .22DP, 1800x1440 77Hz	$1540
IIYAMA VisionMaster-17 MF-8617E 17" .26DP, Microprocessor Contrl, PnP, DPMS, MPRII, Full On-screen program, 1600x1200@69Hz	$519
IIYAMA VisionMaster-Pro 17 MT-9017E 17" .25DP, Microprocessor Contrl, PnP, DPMS, MPRII, Full On-screen program, 1600x1200@72Hz, Trinitron Tube	$610
IIYAMA VisionMaster 450 S-901GT 19" .22x.14DP, 18.0" Diagonal View Size, PnP, DPMS, TCO 95 Compliant, Full On-screen program, Anti-Static & Reflection Coating, 1600x1200@80Hz	$780
IIYAMA VisionMaster-Pro 21 MT-9021E 21" (19.5" view) .30x.00DP, Microprocessor Contrl, PnP, DPMS, MPRII, Full On-screen program, 1600x1200@76Hz, Diamondtron	$1085
IIYAMA VisionMaster-Pro 500 MT-9221 21" (19.5" view) .28x.00DP, Microprocessor Contrl, PnP, DPMS, MPRII, Full On-screen program, 1800x1440@74Hz, Diamondtron	$1285
Sony 15"-100ES/100GS 17"-200ES/200GS/200PS 19"-400PS 21"-500PS	$335/$369/$585/$679/$795/$1165/$1665
Viewsonic E641/E655/15GA/15GS/17EA/17GA/17PS/PT770/PT775/GT770/G800/G810/PT813/G810/GT800/29GA/P810/P815/etc	$Call
Mitsubishi, NEC, ADI, Nokia	$Call

Modem

SupraExpress 33.6K Voice Fax Internal PnP	$59
SupraExpress 56K Internal PnP Fax w/SpeakerPhone Voice	$99
USR Sportster 33.6K Faxmodem Internal/External	$95/$110
USR Sportster 33.6K Voice Faxmodem w/Voice Internal	$95
USR Sportster x2-56K Faxmodem Internal/External	$135/$190
USR Sportster x2-56K Voice Faxmodem w/Voice Int./Ext	$145/$205

Floppy Drive/Tape Back up

Floppy Drive 1.44M 3.5"/Teac 1.2M 5.25"/1.44M 3.5"	[illegible]
Colorado 3.2GB T-3000 off floppy Travan w/Win95 Sftwre, w/tape	$155
Colorado HP T4000S/T4i 8GB, 62MB/min, SCSI-2, Travan TR-4, Int., w/tape	$359
Colorado HP 5GB, IDE, 648K/s, 55MB/min, 2.5Gb native/5GB compressed Travan TR-4, Int., w/tape	$220
Colorado HP 5GB Travan Tape 1pack/2pack/5pack	$39/$60/$135
Seagate 4586NP SCSI-2 DAT DDS-2 Autoloader supports 4 - 120m 4MM DAT tapes for 32GB, optional 12 tape magazine for 96GB	$935
Optional 12 tape magazine for above	$135
A:Drive LS-120MB Super Hi-Val FDrive 5X1.44FD spd, read/write 1.44MB	$140
Iomega ZIP Drive 100MB w/disk ATAPI IDE -Internal	$95
Iomega ZIP Drive 100MB w/disk SCSI-Internal/External	$125/$145
Iomega ZIP Drive Disks single/three/ten pack	$15/$40/$130
Iomega Jaz Drive 1GB w/disk SCSI-Internal/External	$275/$365
Iomega Jaz Drive Disks single/five pack	$92/$445
Tape Cartridge TR-1/TR-3/TR-4/DAT	[illegible]

KeyBoard/Mice/Software/Chassis/PowerSupply/Misc

Mitsumi/KeyTronic104 Enhanced Win95 Keyboard	[illegible]
Focus 2001 104 Win95 Key Enhanced Click w/Cover	$33
Focus 6002 104 Win95 Key Enhanced w/ wristrest	$30
Natural Keyboard SK-6000 Win95 Key Enhanced / with Touch Pad	$45/$65
MicroSoft Natural Keyboard Win95 Key (with System Purchase ONLY)	$55
MicroSoft Ergonomic Mouse Serial/PS2 (with System Purchase ONLY)	$25
MicroSoft Intellimouse with wheel Serial/PS2 (with System Purchase ONLY)	$40
Logitech 2-Button Mouse Serial/PS2	$12/$12
Logitech Mouseman Serial+PS 2 Combo/Cordless	$25/$60
Logitech Trackman Marble	$45
MS DOS 6.22/Windows V3.11/WFWG V3.11(w/System Purchase)	$45/55/75
MS Windows 95 Full CD OEM/NT V4.0 Workstation (w/SystemPurchase)	$90/$180
MS Windows NT V4.0 Server with 5 User Access License OEM	$650
GigiStar Series Full Tower 250W AT/ATX	$79/$89
GigiStar Series Medium Tower 250W AT/ATX	$60/$70
GigiStar Series Mini Tower/DeskTop AT 230W	$40/$45
Server Chassis (T-101)/Disk Array Chassis (T-103): Dimension=13"x31"x22" w/Dual Redundancy & Hot Swappable Power Supplies:	
- T-101:12 DriveBays/Upto 2 PowerSupply 2x300W, 2x4.6" Smart Fans w/ Efficient, Air Flow, Full Size AT Motherboard FormFactor	$880
- T-103: 16 DriveBays/Upto 2 PowerSupply 2x300W, 2x4.6" Smart Fans w/ Efficient Air Flow, Perfect RAID Disk-Array Sub-Chassis	$880
Server Chassis LT-18 By Axxion w/o Power Supply - Full-size AT, Baby AT, oversize AT based boards, 11 drive bays (one 3.5" and four 5.25" exposed, six 5.25" hidden bays), Twelve slots, "snap-in" drive rails, second cooling fans, accepts standard power supply, Dims: 26" x 10" x 24.5"	$480
Server Enclosure KS-1400 w/ Dual Redundant Hot-Swappable 300Wx2 PS, Full-size AT, Baby AT, oversize AT based boards,14-5.25" drive bays, Twelve slots, "snap-in" drive rails, 8 cooling fans, Dims: 20.5" x 16.25" x 23.75" (DxWxH)	$910
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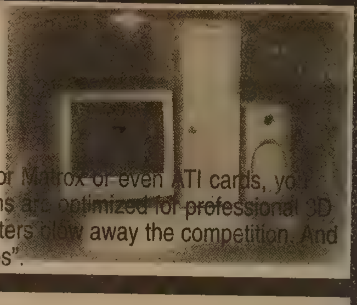

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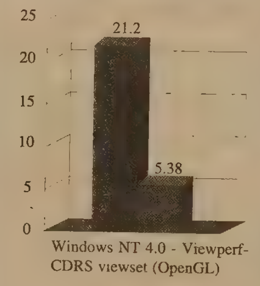

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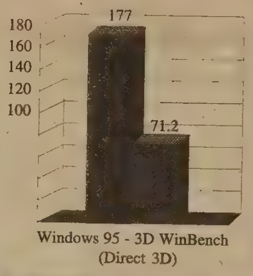

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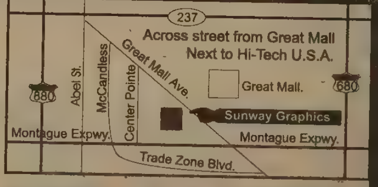

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Successful Telecommuting *continued from page 98*

training will normally provide plenty of basis for keeping the telecommuting movement from turning into a stampede.

In short, the torch of myopia and fear regarding telecommuting now appears to have been successfully passed from the front lines to the back office, where it can conceivably do more harm than ever before.

While the favorable facts may be mounting up, and the tide may be turning in favor of telecommuting, there is still much more work to be done before telecommuting becomes as acceptable in the American economy as any other productive form of employment.

Telecommuting For People With Disabilities

Anyone who wants to explore the possibilities of telecommuting as a way for disabled people to earn a good living should check out a valuable book on this topic.

Questions and Answers About Telecommuting Regarding Persons with Disabilities is a publication of The Independent Living Research Utilization Program, which is part of The Institute for Rehabilitation and Research, in Houston, Texas.

Published by the University of Texas at Austin, it's a guide for anyone who would like to obtain solid information about how telecommuting might provide some income-producing opportunities.

The guide is based mainly on a national mail survey of approximately 500 employers, plus information developed by calling individuals and asking questions, and by extracting useful information from other publications published by potential employers and various departments of federal, state, and local governments.

It is written in a question-and-answer format, so it's fairly easy to follow. There are two versions: the first focuses mainly on information that potential employees with disabilities might want to think about before embarking on a plan to start telecommuting, the other is aimed at potential employers.

To obtain a copy of the guide, call the ILRU at (713)520-0232, or send a request by mail to: Independent Living Research Utilization Program (ILRU), Ste. 10002323, South Shepherd, Houston, TX 77019. The cost is $5. Be sure to specify whether you want the one for potential employees or potential employers.

Globe-Trotting Anchors Should Stay Home

Have you ever noticed how Peter Jennings, Dan Rather, and Tom Brokaw feel the need to be in front of the place where news is breaking? They all went to Cuba for the Pope's visit. Then came word of a new Bill Clinton scandal and all three immediately departed—two to Washington, DC, and one to New York City. I guess sex trumps religion in the news biz.

But can't these guys pick up a telephone?

Seriously, we all know it's show business—not news gathering—that drives the network to "up anchor" and position their premiere smiling faces in front of whatever location appears relevant on any given day. But think of the anti-telecommuting message this geographic instability conveys.

If these anchors would stay at home and communicate on the air with far-flung correspondents by fax, modem, teleconference, and videoconference, they'd still have all the latest facts and innuendoes at their fingertips without ever experiencing jet lag. Meanwhile, the rest of us might get the message that you can do your job without having to travel long distances just to put yourself on the scene. ■

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Be It Ever So Humble

Recent Tax Developments For Home Office And Home Computer Deductions

By David A. Simon, CPA and Jennifer R. Cherniss

Work has been creeping ever-deeper into our home lives, and the tax man follows close behind.

The increasing use of home offices and personal computers in the home for income-producing purposes has been accompanied by evolving tax legislation and case law regarding the deductibility of their costs. As outlined here, workers have won important, but limited, victories during the past year, signaling more liberal tax policies favoring deductibility.

(Some of the legislative changes that will be discussed here have not yet taken effect. Readers are cautioned not to overlook the effective dates of new law.)

Mi Casa Es Su Office

In a modest taxpayer victory, the Tax Court allowed the cost of home-based computer equipment as a deductible employee business expense. The case, *Mulne v. Commissioner* (cited at end of article), is noteworthy because it supports situations in which employees can obtain substantial tax benefits for the cost of buying their own personal computer.

Sherri Mulne worked for Pacific Bell Yellow Pages at its downtown Los Angeles offices. She also worked at home and frequently visited customers at their business sites.

In 1991, Mulne purchased an old IBM computer and printer costing $3,689 to use at home. She used the computer and printer exclusively for business purposes, to write various reports and other documents required by Pacific Bell, and to keep up with the volume of work associated with her position as sales manager. She deducted the cost of the equipment as an employee business expense on Schedule A (itemized deductions). Mulne also claimed a home office deduction for a room in her apartment.

Mulne made an "expense election" to deduct the entire $3,689 cost of the computer on her 1991 tax return rather than slowly depreciating it over five years. Certain types of property, however—including any computer or peripheral equipment—cannot qualify for the expense election unless the property is used for the convenience of the employer and is required as a condition of employment. Without the expense election, employees typically would derive little or no tax benefit from slowly depreciating a computer because of computational rules that restrict the annual deductibility of employee business expenses.

The Internal Revenue Service denied her deductions, arguing that Mulne failed the "convenience of employer" and "condition of employment" requirements. Under temporary IRS regulations, in order to satisfy the "condition of employment" test, the use of the property must be required in order for the employee to perform her duties properly. The employer need not explicitly require the employee to use the property. Instead, the determination of "required" depends on all the facts and circumstances of the case.

> **Workers have won important, but limited, victories during the past year, signaling more liberal tax policies favoring deductibility.**

The Tax Court found that, because of her heavy caseload and the number of sales representatives she managed, it was necessary for Mulne to use a computer and printer at home. A Pacific Bell manager testified at trial that, by using computers at home, sales managers could access information via modem and generally keep up with their work load. The manager noted that only high-level management could enter the building after hours and that Mulne was not among them—so she was unable to use the office computer after business hours.

The court found that Mulne's use of the computer and printer was for the convenience of her employer and was required as a condition of employment. Accordingly, she was allowed to make the expense election and deduct the full $3,689 cost in one year.

Passing the "convenience of employer" and "condition of employment" tests is also necessary for an employee to qualify for a home office deduction. The Tax Court disallowed Mulne's home office deduction on unrelated grounds, but noted that Pacific Bell did not require sales managers to have a home office. Pacific Bell preferred them to have a home office if it promoted time management, and enabled managers to access information to better coach their sales representatives and keep up with their own work. The court did not rule out the possibility that PacBell's preference, even without a requirement, might be sufficient to satisfy the condition of employment test.

Ironically, Mulne lost the home office deduction on the narrow grounds that she didn't do enough at home to make it her principle place of business.

The implication of *Mulne* is that employees who telecommute may stand a decent chance of deducting not only the cost of their computers but home office expenses as well. The hidden message is that sophisticated employers will carefully structure their practices so their employees can reap the tax benefits. And it did PacBell good, once they put rigorous conditions on Mulne's employment success, to stand by her in court even though they were not compelled to do so.

continued on page 188

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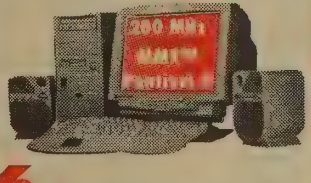

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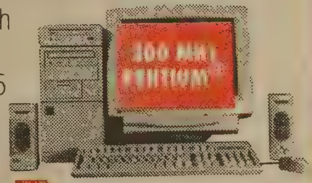

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PENTIUM® II 233/266/300/333

- Intel Pentium® II CPU + Fan
- Intel LX Chipset M/B
- 32MB SDRAM
- 4.3GB Ultra DMA HD
- 1.44MB Floppy Drive
- Matrox Mystique 220 4MB
- Mid Tower ATX Case

$869/959/1119/ 1329

CPUs

INTEL

Pentium® II 309/266/233	$525/379/295
MMX 233/200/166	$199/129/109
Pentium® 166/150	$100/95
DX4-100	$40
387SX-33	$14

AMD

K6 233/200/166	$185/165/125

CYRIX/IBM

686MX 200	$89

ASUS MMX

- ASUS TX 97E 512K M/B
- AMD K6-166/200/233
- 32MB EDO RAM
- 2.5GB Ultra DMA HD
- Diamond Stealth 2MB
- Mitsumi 1.44MB FD
- Mini Tower Case
- 24X CD-ROM
- 16-Bit Sound Card
- 33.6 Modem w/Voice
- Win 95 Keyboard and Mouse

$689/739/739

INTEL MMX

- Intel Lonetree 512K M/B
- Intel MMX 166/200/233
- 32MB SDRAM
- 4.3GB Ultra DMA HD
- Diamond Stealth 2MB
- Mitsumi 1.44MB FD
- ATX Mid Tower Case
- 24X CD-ROM
- 16-Bit Sound Card
- 56K Modem w/Voice
- Keytronics Win 95 Keyboard
- Logitech MouseMan
- Free Games

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- Tyan Dual Tiger M/B
- Intel PII 233/266/300/333 Single
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- 4.3GB UW HD
- Adaptec 2940 UW Controller
- Diamond Stealth 2MB
- Mitsumi 1.44MB FD
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- 12X SCSI CD-ROM
- Keytronics Win 95 Keyboard
- Logitech MouseMan

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Cirrus Logic 1/2MB	21/30
Trident 1/2MB	19/25

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QUANTUM	
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17" Impression .27	365
17" Sony 200ef .25	565

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EIDE/IO VLB/ISA/PCI	$9/14/20
WD SCSI II PCI	59
Adaptec 2940U PCI	152

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DC-320 EISA/SCSI	59

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Power Supply PS2/ATX	20/38

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3Com 3C509-TPO/Combo	43/56
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Intel 100 BaseT PCI	49
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33.6/56K US Robotics	79/99
56K Diamond Supra w/Voice	81

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Keytronics 104 Keyboard	15
Logitech Trackball	45
Mitsumi 1.44 Floppy	18

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586 M/B & P-100	$99
586 M/B & P-60	69
Teac FD Combo	50
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Micropolis 540MB SCSI HD	95
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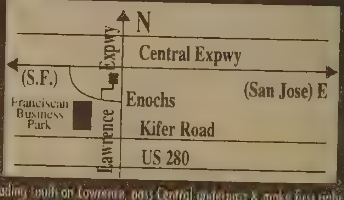

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Crystal 16 bit sc on MB
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Pentium II® 233 $2043

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ATX Medium Tower Case
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Viewsonic G773 monitor
Creative Labs AWE 64 SC
Toshiba 24x EIDE CDROM
33.6 US Robotics Fax modem w/voice
180W Stereo Speakers
Microsoft PS2 Mouse & Pad

Pentium® 233MMX $1599
Pentium® 200MMX $1528
Pentium® 166MMX 1509
AMD K6 233 1562

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104 Keytronics KB w/ WIN 95 Key
Sony 200GS 17" .25 monitor
Creative Labs AWE 64 SC
Toshiba 32x EIDE CDROM
56K US Robotics Fax modem w/voice
180W Stereo Speakers
Microsoft PS2 Mouse & Pad

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Pentium II® 300 $2259
Pentium II® 266 $2100
Pentium II® 233 $2006

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ATX Medium Tower Case
104 Keytronics KB w/ WIN 95 Key
MGC 1785 17" monitor
Creative Labs AWE 64 SC
Toshiba 24x EIDE CDROM
33.6 US Robotics Fax modem w/voice
180W Stereo Speakers
Microsoft PS2 Mouse & Pad

Pentium® 233MMX 1437
Pentium® 200MMX 1367
Pentium® 166MMX 1348
AMD K6 233 1400
AMD K6 200 1375
AMDK6 166 1347

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104 Keytronics KB w/ WIN 95 Key
Viewsonic G773 17" Monitor
Yamaha OPL4 16 Bit SC
Toshiba 24X EIDE CD ROM
56K US Robotics Fax modem w/voice
180W Stereo Speakers
Microsoft PS2 Mouse & Pad

Pentium® 233MMX $1445
Pentium® 200MMX 1424
Pentium® 166MMX 1404
Pentium® 200 1424
Pentium® 166 1397

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Intel Atlanta AL440LX MB w/Yamhaha OPL3-SA audio
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Intel CPU w/256K cache & Fan
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4.3 GB Ultra DMA HD
1.44 TEAC FD
ATX Medium Tower Case
Keytronics PS2 keyboard
Microsoft PS Mouse & Pad
MGC 1785 17" Monitor
US Robotics 56K w/voice fax
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Toshiba 24X EIDE CD Rom

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Pentium II® 233 $1594

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***SATELLITE PRO 480CDT**
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$3486

***TECRA 520CDT**
166MMX, 2.02GB, 10X, 32MB EDO, 12.1" TFT, 33.6 Faxmodem
$2940

***TECRA 730XCDT**
150MHZ MMX, 2.02GB, 10X, 16MB EDO, 12.1" TFT, 28.8 FaxModem
$2184

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***VISIONBOOK PRO**
233MMX, 32MB, 3.2GB, 56K, 20X, 13.3" TFT
$3465

***VISIONBOOK PLUS**
166MMX, 16MB, 2.1GB, 33.6, 10X 12.1" TFT
$1764

***VISIONBOOK ELITE**
166MMx, 16MB, 2.1GB, 10X, 13.3" TFT
$2572

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Intel Anchorage AN430TX chipset, ultra DMA, 512K
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2.1 GB Ultra DMA HD
ATX Medium Tower Case
104 Mitsumi KB, MS mouse&Pad
Yamaha MF701 16 bit stereo SC
Toshiba 24X EIDE CD ROM
180W Stereo Speakers
MGC 15" NI (1280x1024, .28dp)

Pentium 233MMX $890
Pentium 200MMX $820
Pentium 166MMX $800

MULTIMEDIA

❖CREATIVE LABS	
SoundBlaster AWE64 Gold Oem	165
SoundBlaster AWE64 GOLD Ret	180
SoundBlaster AWE64 oem	80
❖ TOSHIBA	
32X IDE/32X SCSI	96/110
24X EIDE/12X SCSI	76/97
❖ Mitsumi 16X	65
❖ CD Writer	
Yamaha 4X6 Int SCSI Rewrt	550
Yamaha 6X4X2 IDE Rewrt	460
Sony 2X6 Int Retail SCSI	362
Sony 2X8 Int. Retail IDE	340
❖ DVD	
Creative Labs Encore DXR-2	265
Toshiba-Diamond DVD kit	305

FAX MODEMS

❖SUPRA	
56K Int w/voice oem	92
❖US ROBOTICS Sportster	
33.6 w/voice Int. oem	93
33.6 w/voice&Spkphne Int/Ext	125/145
56K Int. vo oem / 56K Ext Ret	133/180
56K w/voice Int./Ext Ret	180/195

KEYBOARDS

Mitsumi 104 w/win95 key	15
Maxiswitch/Keytronics	20/23
Focus 2001/7200	28/30
Focus 8200/9200	.43/45
Lite-on Touch Pad	50
Microsoft Natural OEM w/s	53

MB & CPU'S

Intel Dakota Dual Pen II 300/512k	$1609
Intel Dakota Dual Pen II 266/512k	$1287
Asus P2L97-S Dual + Pen II 300/512k	$1479
Asus P2L97-S LX440+Pen II 333/512k	$1000
Asus P2L97-S LX440+Pen II 300/512k	$787
Asus P2L97-LX440+Pen II 333/512k	$915
Asus P2L97-LX440+Pen II 300/512k	$700
Asus P2L97-LX440+Pen II 266/512k	$540
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Anchorage/512k+Pentium 166MMX	$257
Asus SP97V/512k+Pentium 233MMX	$277
Asus SP97V/512k+Pentium 200MMX	$202
Asus SP97V/512k+Pentium 166MMX	$183
Asus SP97V/512k+AMD K6-233 Mhz	$239
Asus TX97/512K + Pentium 233MMX	$329
Asus TX97/512K + Pentium 200MMX	$256
Asus TX97/512K + Pentium 166MMX	$236
Asus TX97/512k + AMD K6 233MMX	$292
Asus TX97/512k + AMD K6 200MMX	$265
Asus TX97/512k + AMD K6 166MMX	$235

VIDEO CARDS

❖TRIDENT	
512k/ 1MB ISA/1MB PCI	24/36/30
❖DIAMOND	
Stealth 3-D PRO 2mb/4mb	60/83
Monster 3-D w/4mb Dram	155
3D 3000 2MB/4MB VR	110/150
FireGL1000ProAGPw/4m/8	152/190
Viper 330 AGP 4mb	165
❖MATROX	
Millenium II 4MB WR oe/re	160/181
Millenium II 8MB WR oe/re	228/262
Millenium II AGP 4MB/8M	185/235
Mystique 220 4MB oem/ret	117/120
❖NUMBER NINE	
Revolution 3D AGP 4MB oem	210
Revolution 3D AGP 8MB oem	285
❖ATI	
3D ProturboPC2TV 4MB/8MB	118/159
All-In-WonderProAGP 4MB/8MB	205/250
XPERT@PLAY AGP 4MB/8MB	175/220
XPERT@WORK AGP 4MB/8MB	140/200

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MONITORS

❖NANAO	
EIZO FX-B5/TX-C7	468/808
TX-D7S(20")	1525
EIZO FX-C5/FX-C6	654/735
FX-E7 / FX-E8	1525/2020
❖NEC	
P750(17".25dp)/M700	756/730
E500/E700/M500	336/642/359
E1100(21")/P1150(21")	1058/1190
❖MAG	
DJ800(19") / DX715T	754/597
DJ530 / DJ700	252/483
DX15T / DX700T (.25DP)	305/519
DJ920(21") / DJ702E	1148/462
Princeton EO 50 / EO70	236/400
Princeton EO 90 (19" .26)	780
❖SONY	
100ES / 17SE2 T	323/825
200GS/200ES	645/584
20SE2T/300SFT (20")	1465/1119
400PS(19")/500PS (21")	1110/1630
❖HITACHI	
CM500U/CM620	290/480
CM800 (21")/CM-630	1195/600
CM-751 / CM802	840/1211
❖VIEWSONIC	
E641 (14") /PT775	179/648
P815(21")/ E655	1230/248
15GS/15GA	297/318
17GA/G771	504/441
G773 / P775	465/544
P810/E771	1090/391
G800 / G810	985/986
G790/GT775	780/571
PT770/PT 813	597/1240
❖NOKIA	
447ZA 27"/447XI	509/596
445XI (21") /446Pro	1329/967
❖IIYAMA	
MT-9017E/MF-8617E	630/560
❖MGC	
NI 14" Monitor 0.28	150
NI 15" .28 Digital Control	190
NI 17" Monitor 0.28	350
NI 1785 1600X1200 0.26	450
❖COLORADO	
T-3000 3.2GB/T4000 8GB	167/345
Iomega Zip 100 IDE Int. bulk	99
Iomega Zip 100 Parrallel	142
Iomega Jazz 1.0GB SCSI Int.	285
Iomega Jazz 1.0GB SCSI Ext	368
HP DAT 4-8GB oem	740
❖TEAC	
Floppy Drive 1.44	22

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2.1 GB EIDE(M3021AT/UD)	140
4.3 GB EIDE(M3043AT/UD)	203
5.2 GB EIDE(M3052AT/UD)	236
6.4 GB EIDE(M3264AT/UD)	260
❖QUANTUM	
3.2 GB EIDE(ST33240A)	183
4.3 GB EIDE(ST34300SE-A)	208
6.4 GB EIDE(ST36400SE-A)	280
8.4 GB EIDE(ST38400SE-A)	360
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4.5 GB UL SCSI(XP34550S)	465
6.4 GB UL SCSI(ST6400SE-S)	360
8.4 GB UL SCSI(ST8400SE-S)	460
❖WESTERN DIGITAL	
3.2 GB EIDE(AC23200)	188
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6.4 GB EIDE(AC36400)	263
4.3GB UW SCSI (E4360-007)	465
9.1GB UW SCSI (WDE9100W)	725
❖SEAGATE	
2.2GB UW SCSI (ST32272W)	340
4.5GB UW SCSI (ST34572W)	510
9.0GB UW SCSI (ST19171W)	750
❖MAXTOR	
5.2 GB ULTRA DMA	234
6.4GB ULTRA DMA	255
8.4GB ULTRA DMA	330
❖IBM	
2.1GB UW SCSI (AS32160W)	203
4.3GB UW SCSI (AS34330W)	280

CONTROLLERS

❖ADAPTEC	
Adap. PCI 2940AU OEM w/SW	166
Adap. PCI 2940UWw/SWOEM	188

CASES

Baby AT Case w/ 230W	39
Mini Tower case w/230W	30
Medium Tower case 230W	48
ATX Desktop case	65
ATX Medium case	67
ATX Full Tower case w/300W	109

SOFTWARE

MS Win NT 4.0 WS w/sys	145
MS Win NT 4.0 Server w/sys	450
Office Standard Win 97 w/sys	155
Office Pro for Win 97 w/sys	195

MICE

MS mouse serial/bus w/sys	23/48
MS IntelliMouse w/sys	37
Logitech Mouseman/Trackman	23/40
Logitech Marble Trackman	50

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•FUNAI 16X IDE CD-ROM INTERNAL	69
•TOSHIBA 32X SCSI CD-ROM INT	135
•TOSHIBA IDE CD-ROM INTERNAL 24X/32X	85/105
•TEAC IDE CD-ROM INTERNAL 24X/32X	79/99
•RICOH MP6200-S 6X2 CD-RECORDER INTERNAL	539
•MICROPHONE	9
•DIAMOND IDE DVD	309

Multimedia Products

•SOUND BLASTER AWE 64 Gold	$185
•SOUND BLASTER AWE 64 Retail/OEM	179/79
•SOUND BLASTER PRO 16 BASIC IDE (OEM)	49
•YAMAHA CHIPSET 16-Bit Sound Card	29
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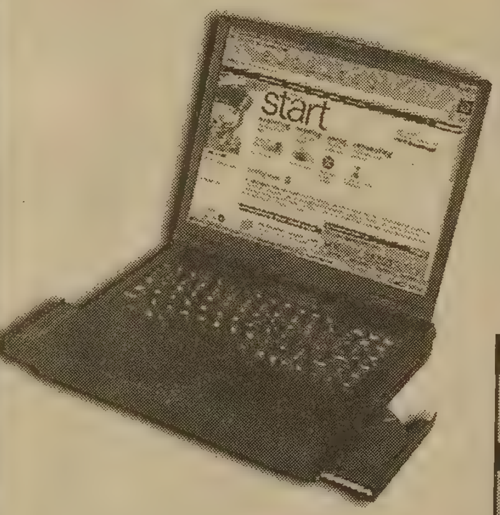

UPGRADES:

PCMCIA 33.6 Fax/Modem	$99
PCMCIA 56K Fax/Modem	$139
Upgrade to 32MB	+75
Upgrade to 48MB	+135
Upgrade to 80MB	+255
2.0GB	+75
3.0GB	+199
4.0GB (for Model 758)	+399
5.0GB (for Model 758)	+519
Removable HDD Kit	+29
Lithium Ion Battery	+175

STANDARD FEATURES:

- Supports Intel Pentium® MMX Technology
- Built-in 16X CD-ROM
- 1.44MB Floppy Drive
- 1.1GB Hard Drive
- 2MB Video Display
- 128-Bit Graphic Chipset
- Lithium-Ion Battery
- Removable Hard Drive
- 800x600 Resolution
- 16MB EDO RAM On-Board (Exp to 80MB)/ (Exp to 128MB for Model 758)
- Two PCMCIA Type II or One Type III Slots
- Touchpad Pointer
- 1-Year On-Site Service (Not covered on model 758)

DISPLAY/SPEED	133MHz	166MMX	200MMX	233MMX
12.1" ACTIVE MATRIX	$1778	1798	1818	N/A
12.1" DUAL SCAN	$1408	1428	1448	N/A
Model 758				
12.1" ACTIVE MATRIX SVGA .20X CD-ROM USB Ports	$2018	2038	2058	2138
13.3" ACTIVE MATRIX XGA .20X CD-ROM USB Ports	$2348	2368	2388	2468
13.3" DUAL SCAN XGA .20X CD-ROM USB Ports	$1798	1818	1838	1918
14.2" ACTIVE MATRIX XGA .20X CD-ROM USB Ports	$2538	2558	2578	2658

* AVAILABILITY OF NOTEBOOKS IS SUBJECT TO AVAILABILITY OF CPUs

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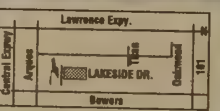

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$1558/$1328/$1148/$1048
MOTHERBOARD/1CPU
$1398/$1168/$978/$878

PENTIUM® II
333/300/266/233
Intel Motherboard (No Sound Card)
440LX Chipset
$1198/$968/$788/$688
MOTHERBOARD/CPU
$1028/$798/$608/$508

PENTIUM® II
300/266/233
Intel Motherboard (No Sound)
440FX Chipset
$908/$728/$618
MOTHERBOARD/CPU
$768/$578/$478

PENTIUM® II
333/300/266/233
Microstar Motherboard
440LX Chipset
$1168/$938/$758/$658
MOTHERBOARD/CPU
$998/$768/$578/$468

PENTIUM® 133/150/166MMX/200MMX/233MMX
PCI
INTEL ANCHORAGE M/B
$428/$438/$448/$468/$548
MOTHERBOARD/CPU
$278/$288/$298/$318/$398

PENTIUM® 133/150/166MMX/200MMX/233MMX
PCI
INTEL LONGTREE MOTHERBOARD
$418/$428/$438/$458/$528
MOTHERBOARD/CPU
$268/$278/$288/$308/$388

PENTIUM® 133/150/166MMX/200MMX/233MMX
PCI
512K PIPED BURST CACHE
$318/$328/$338/$358/$428
MOTHERBOARD/CPU
$188/$198/$208/$228/$308

AMD 100/133/K6-166/200/233
PCI
TRITON CHIPSET
512K PIPED BURST CACHE
$288/$298/$328/$358/$398
MOTHERBOARD/CPU
$158/$178/$208/$238/$278

BASIC SYSTEM CONFIGURATION

- **32MB RAM Intel 440LX M/B**
- **16MB RAM Pentium® II & Pentium® Pro**
- **8MB RAM Expandable**
- **IDE 2FD/4HD Controller**
- **101-Key Keytronic Keyboard**
- **Teac 1.44MB Floppy Drive**
- **1 Parallel, 2 Serial Ports**
- **Mini Tower Case (Pentium® Pro, Pentium® II, Anchorage & Lonetree: Uses ATX Mid Tower Case)**
- **Power Supply**
- **One Year Warranty**

LIFETIME LABOR WARRANTY ON SYSTEM!

MULTIMEDIA COMPLETE SYSTEM

w/ 16X SPEED CD ROM

PACKAGE INCLUDES:
- Motherboard w/512K Cache
- 16 MB RAM
- 2.1GB Hard Drive (Fujitsu)
- Mini Tower Case
- 16X IDE CD-ROM (Funai)
- Sound Blaster 16 OEM Soundcard
- Teac 1.44MB Floppy Drive
- 14" SVGA 1024x768 .28mm NI Color Monitor
- SVGA Card w/1MB (Trident Chipset)
- IDE Enhanced Controller (2S/1P/1G)
- 101 Keyboard
- 25W Speakers
- Microsoft Compatible Mouse
- Windows 95 Software

CALL FOR OTHER CONFIGURATIONS & OPTIONS

K5 133MHz (AMD) (PCI)	**$808**
K5 166MHz (AMD) (PCI)	**$838**
K6 166MHz (AMD) (PCI)	**$838**
PENTIUM® 133MHz (PCI)	**$818**
PENTIUM® 166MHz MMX (PCI)	**$838**
PENTIUM® II 233MHz	**$1118**

Peripherals

VIDEO CARDS

ATI 3D Pro 8MB (OEM)	$179
ATI 3D Xpression+ 4MB DRAM PC2TV (OEM)	109
ATI 3D Pro 4MB OEM/Retail	139/199
ATI Expert@Play AGP 4MB/8MB	189/229
ATI Expert@Work AGP 4MB	159
Diamond Stealth 64 2MB VRAM PCI	85
2MB Upgrade for Above	59
Diamond 3D Monster 4MB PCI Ret./OEM	189/159
Diamond 3D 2MB/4MB DRAM	75/99
Diamond Viper V330 4MB AGP (OEM)	175
Diamond Viper V330 4MB PCI (OEM)	175
Diamond GL1000	
4MB PCI/8MB	155/199
4MB AGP	159
Diamond Stealth II 4MB (OEM)	105
Matrox Millennium II 1600x1200	
4MB WRAM PCI	165
8MB WRAM PCI	285
4MB WRAM Upgrade	125
8MB WRAM Upgrade	195
12MB WRAM Upgrade	285
Matrox Millennium II AGB 4MB/8MB	195/255
Matrox Mystique 220 2/4MB (Retail)	109/139
Matrox Mystique Rainbow Runner	199
Matrox Mystique 2 MB Upgrade	59
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Achme 4MB AGP	69
Trident PCI 1MB (64 Bit MPEG)	45
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DRIVE CONTROLLERS

IDE Controller	$17
KW557 IDE ISA 2S/1P	37
Adaptec 2940 SCSI PCI (Bus Mastering)	159
Adaptec 2940 ULTRA SCSI PCI	179
Adaptec 2940UW Ultra Wide SCSI	199
Adaptec 3940 PCI Multi-Channel	399
8 Bit SCSI Card	49
Promise EIDE 2300 Plus 4HD/2S (16550)/1P	49
Promise EIDE MAX IDE	32

I/O CARDS

AT-I/O (2S/1P/1G)	$15
Printer Card	12

KEYBOARDS

Microsoft Natural Keyboard	$49
Keytronic 101 Win 95	29
Maxiswitch 101 Keyboard	29
Mitsumi 104 Keyboard	19

MONITORS

Iiyama (IDEK)	
MF8515G 15" .28	$285
MF8617E 17" .26	545
S901GT 19"	899
MF9017E 17" .25	645
MT9021E 21" .3	1150
MT8721 21" 1800X1440	1250
NANAO	
FX-C5 17"/FX-C6 17" .27, 1280X1024	759/859
TX-C7S/TX-D7S 17" .25, 1600X1200	1025/1795
FX-2 21" .26, 1600X1280	2865
VIEWSONIC	
P810 21" 1600x1280 .26 (sale)	1165
P815 21" 1800x1440 (sale)	1295
G800 20" 1600x1280 .28NI	1025
17PS 17" 1600x1200 .25	685
G771 17" 1280x1024 .27NI	465
15GS 15" 1280x1024 NI	299
E641 14" Non-Int	195
9" Mono VGA	119
15" SVGA 1280x1024 (3 Yr. Warr.)	209
SVGA NI 1024x768 .28 (3 Yr. Warr.)	149
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PANASONIC S70 (17") 1024x768 .28	499
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CPD 100ES/CPD 200ES	345/615
CPD 300SF 20"	1199
ART MEDIA (Sony OEM) TX1864 17"	599
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447ZA (17") 1024x1024 .28 (w/Spk)	615
447X	929
445Xi (21") 1600x1280	1695

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Megahertz PCMCIA FaxModem (36.6/14.4)	$189
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56K Fax/Modem w/Voice (OEM)	139
56K Fax/Modem Internal (OEM)	145
SupraExpress	
33.6 Fax/Modem w/ Voice Mail Int.	69
56K Fax/Modem	99
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C1534 4mm DAT 2GB SCSI INT	$549
C1536 4mm DAT 2-4GB SCSI INT	595
C1599 4mm DAT 8GB SCSI INT	765
5.25" Mounting Frame	28
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4GB T4000 SCSI TRAVAN INT	375
Travan (800MB) Tape	27.95
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IOMEGA ZIP Drive 100MB SCSI/Parallel	149/149
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ZIP+	199
Ditto 3200MB Int/Ext	235/259
JAZ Int/Ext	299/399
JAZ Disk/Zip Disk	85/12.50

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All HDs Come with Mounting Bracket

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TEAC 1.2MB	43
3.5" (1.44MB) w/Frame	31
MAXTOR	
4.3GB UDMA IDE	215
8GB UDMA IDE	349
FUJITSU	
2.1GB UDMA IDE	149
2.6GB IDE	169
3.2GB IDE Ultra DMA	179
4 3GB IDE Ultra DMA IDE	215
6.4GB IDE Ultra DMA IDE	279
5GB Ultra DMA IDE	259
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WDAC 2 1GB IDE	159
WDAC 32500 2.5GB IDE	189
WDAC 33200 Ultra DMA (3GB))	199
WDAC 34300 Ultra DMA (4GB)	215
WDAC 36400 Ultra DMA (6GB))	285
SEAGATE, QUANTUM LARGER CAPACITY DRIVES	CALL
QUANTUM	
1/2GB SCSI	229/239
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Ethernet Combo PCI	$39
Ethernet Combo 16 Bit (Celan) Plug N Play	39
3 COM	
3C509 TP/OEM/Reg	59/118
3C509 Combo OEM/Reg	69/129
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3C900 Combo PCI OEM/Reg	89/135
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3C575TX 10/100 PCMCIA Card	155
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Intel EtherExpress Pro (100MB) PILA 8465B Single/5 Pack	59/425
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U.P.S.

650 VA/1400VA	$155/295

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17" Baby AT Case W/200W P/S	$79
Vertical Case 250W P/S	99
Medium Vertical Case 250W P/S	95
Mini Vertical Case 250W P/S (UL P/S)	69
Mini-Mid Case	49
ATX Medium Tower Case	95
ATX Full Tower Case	115
ATX Desktop Case	99

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PC Joystick	$16
Logitech 2-button PS/2 Mouse	19
Logitech Cordless Mouse	85
Logitech Bus Mouseman	64
Logitech Mouseman Combo/OEM	49/24
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MS DOS 6.2 (w/System only)	45
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Keyboard Extension cable	5
Monitor Extension cable	5
Power Center	18
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Power supply 220W	48
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IMAGER 730 30-Bit Parallel Port	$119

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*Intel Pentium II 233~333MHz w/512KB L2 Cache include Intel MMX Technology
*Intel AL440LX PentiumII MB w/AGP Port
*64MB SDRAM 10ns
*8.4GB UltraDMA/33 Hard Drive
*ATI Expert @ work AGP Video Accelerator 4MB SGRAM
*17" SVGA Monitor 1280x1024
*Teac 1.44MB Floppy Drive
*Keytronic 104 Keyboard
*Microsoft mouse w/ pad
*32X EIDE Internal CDROM
*Creative Lab AWE 64 Sound Card
*Yamaha Yst-M7 Speaker
*U.S. Robotics Internal 56K Fax/Data/Voice Modem
*ATX Medium Tower Case w/235WattsPS

*Microsoft Windows 95

$ 2019 / $ 2149 / $ 2319 / $ 2529
233MHz / 266MHz / 300MHz / 333MHz

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* Intel Pentium 200~233 MMX
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* UltraDMA/33 4.3GB EIDE Hard Drive
* 15" SVGA .28DP Flat Screen Monitor
* PCI Video w/2MB
* Teac 1.44MB Floppy Drive
* KeyTronic 104 Enhanced KB
* Logitech PS/2 Mouse w/ Pad
* Built in PCI EIDE Controller 4HD/2FD
* 2 Serials (16550 UART) & Parallel Port
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* 24X EIDE Internal CDROM
* Shield computer power speaker
* 33.6 Internal Voice Fax Modem
* Microsoft Windows 95

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*MS Office 97 Small Business Edition $219

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200MMX / 233MMX

AMD K6 166/200/233 MHZ MMX Enhanced Processor

* AMD K6 166/200/233 MHz w/CPU Fan
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* 32MB SDRAM Dimm 12ns
* UltraDMA/33 4.3GB EIDE Hard Drive
* 15" SVGA .28DP Flat Screen Monitor
* PCI Video card w/2MB
* Mitsumi 1.44MB Floppy Drive
* Mitsumi 104 Enhanced Keyboard
* Mitsumi Mouse w/ Pad
* Built in Board PCI EIDE Controller 4HD/2FD
* 2 Serials (16550 UART) & Parallel Port
* Med Tower Case w/ 230 Watts
* Creative Lab SoundBlaster 16
* 24X EIDE internal CDROM
* Shield computer power speaker
* Microsoft Windows 95

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166 / 200 / 233

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* Built in Video adapter
* Mitsumi 1.44MB Floppy Drive
* Mitsumi 104 Enhanced Keyboard
* Mitsumi Mouse w/ Pad
* Built in Board PCI EIDE Controller 4HD/2F
* 2 Serials (16550 UART) & Parallel Port
* Mini Tower Case w/ 230 Watts
* 16 bit sound card
*24x internal CD Rom
*Mini Shield computer speaker
*Microsoft Windows 95
*Xoom HomeOffice Suite 97

$ 789 / 869
Cyrix M2 PR200 / PR233

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Impression 14" 4VX 1024x768 .28dp NI	$179
Impression 15" 5VX 1280x1024 72Hz .28dp	$219
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Impression 17" Venna Pro .25dp 1600x1280	$559
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Hansol 17" 1280 .28dp	$399
ViewSonic	
ViewSonic 14" E641 .28	$249
ViewSonic 15" E655/15GS/15GA	$339/359/399
ViewSonic 17" 17GA/17GS/17PS	$649/599/699
ViewSonic 17" GT770/PT770/PT775	$689/729/899
ViewSonic 20" GT800 .30	$1249
ViewSonic 21" G810/P810/PT810	$1449/1499/1639
SONY	
SONY 15" 100SX/100SF .25	$349/399
SONY 17" 200SX/200SF/17SE2T .25	$599/649/799
SONY 20" 300SFT/20SE2T	$1429/1899
NEC	
NEC 15" M500	$349
NEC A700/A500	$599/349
NEC E500/E700	$399/679
NEC 21" E1100	$1250
GoldStar	
StudioWork 77i	$399
IIYAMA	
Iiyama 17" VisionMaster .26 /Pro .25	$559/649
Iiyama 21" MT8221E/MT9021E	$1359/1449
HITACHI	
Hitachi 15" Pro 500/17" Pro 600	$319/559
Hitachi 20" Pro 20/21" Pro 800	$1199/1449

Video Cards

Trident 9000(512K)/8900D(1MB) ISA 1024x768	$35/49
Trident 9680 PCI 1MB/2MB	$45/59
Trident ProVidia 9685 w/TV out & 2MB EDO	$79
Cirrus Logic 5446 PCI 1MB/2MB	$45/59
Cirrus Logic LAGUNA3D 5464 PCI 4MB Rambus	$109
DIAMOND	
Diamond Stealth 64 VLB/PCI 1MB/2MB DRAM	$59/74
Diamond Stealth 64 Video PCI 1MB/2MB EDO	$65/79
Diamond Stealth 64 Video PCI 2MB VRAM	$129
Diamond Stealth 3D 2000 PCI 2MB/4MB EDO	$89/115
Diamond Stealth 3D 3000 PCI 2MB/4MB VRAM	$149/195
Monster 3D 3400XL 4MB EDO	$239
ORCHID	
Righteous 3D VGA 4MB EDO	$229
ATI	
3D Xpression PCI 2MB/4MB SDRAM	$129/149
3D Xpression +PC2TV 2MB/4MB SDRAM	$159/189
Video Xpression 2MB SDRAM	$75
matrox	
MGA Millennium II 3D PCI 4MB WRAM	$245
MYSTIQUE	
Mystique 220 PCI 2MB/4MB SGRAM Retail Version	$139/169
Memory upgrade for Mystiques 2MB/4MB/6MB	$49/95/145
Rainbow	
Rainbow Runner Studio For Mystiques	$245
Rainbow Runner Television For Mystiques	$89

Intel Pentium II 233~333 6.4GB 64MB SDRAM AGP Port

*Intel Pentium II 233~333MHz w/512KB L2 Cache W/MMX Technology
*Asus P2L97 PentiumII 440LX MB W/AGP Port
*64MB SDRAM 10ns
*6.4GB UltraDMA/33 EIDE Hard Drive
*Diamond Viper AGP Video 4MB SGRAM
*17" SVGA Monitor 1280x1024
*Teac 1.44MB Floppy Drive
*Keytronic 104 Keyboard
*Microsoft mouse w/ pad
*32X EIDE Internal CDROM
*Creative Lab AWE 64 Sound Card
*Yamaha Yst-M7 Speaker
*U.S. R Internal 56K Fax/Data Modem
*ATX Medium Tower Case 235Watts
*Microsoft Windows 95

$1949 / 2069 / 2249 / 2459
233MHz 266MHz 300MHz 333MHz

Printers & Scanner

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*DeskJet 670/720CXI	$199/299
*DeskJet 890CXI	$295/389
*DeskJet 1000CXI	$399
*DeskJet 1600C/1600PS	$1299/1949
*LaserJet 6LXi/6PXi	$399/749
*LaserJet 4000/4000T	$1025/1279
*LaserJet 4000N/4000TN	$1439/1599
*ScanJet 6100	$699
*ScanJet 5P PC scsi	$259
*ScanJet 5100CXI parallel	$289
Canon	
*BJC-240/4200 Color Inkjet	$199/299
*BJC-4550/620	$479/389
EPSON	
*Stylus Color 400/500	$239/279
*Stylus Color 600/800	$299/449
*PhotoPC/PhotoPC 500 Digital Camara	$389/449

Motherboard

ASUS	
*Pentium SP97-V 512PB Cache 75~200MHz (MMX,Cyrix 686,AMD K6)	$99
*Pentium TXP4/X Triton TX 512PB Cache 75~233MHz (MMX,Cyrix 686,AMD K6)	$119/135
*Pentium TX97/X Triton TX 512PB Cache 75~233MHz (MMX, Cyrix 686,AMD K6)	$150165
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***Dual Pentium II P2L97DS 440LX / AGP Port 233MHz~333MHz Ultra Wide SCSI**	**$499**
Intel	
*Pentium TX 512kb Cache,16 audio	$179
*Pentium Pro Venus PCI ATX MB	$150
*Pentium II AL440LX MB Universal Serial Bus	$195
*Dual Pentium II DK440LX MB Uinversal Serial Bus	$549
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Mass Storage

HEWLETT PACKARD **COLORADO**	
*ColoradoT3000 3.2GB Int	$179
IOMEGA	
*Ditto 2GB Tape Backup Int/Ext	$149/179
*Ditto 3.2GB Tape Backup Ext	$249
*Zip 100MB Ext Parallel/SCSI	$145/145
*Zip 100MB Int IDE	$125
*Jaz 1GB SCSI Int/Ext	$295/395
SyQuest	
*SyJet 1.5GB Int. SCSI PC	$349.95
*EZFlyer 230 Int.IDE PC	$184.95
WESTERN DIGITAL	
*Western Digital Caviar 2.5GB/1.2GB	$199/155
*WD UltraDMA/33 3.2GB/4.3GB	$225/275
Quantum UltraDMA/33 Hard Drive 1.6/2/3.2/4.3/6.4GB	$165/190/229/275/365

CDROM, Modem, Speaker

*USRobotics SportSter 56K Int/Ext	$145/16
*USR. SportSter 33.6K Int/Ext	$89/109
*USR Courier V.Everything Int/Ext	$229/25
*USR MegaHertz 28.8 PCMCIA	$199
*USR SportSter ISDN Internal	$249
*Motorola ModemSurfr 33.6 Ext.	$159
*Zoltrix 33.6 FaxModem Int/Int. Voice	$79/89
*SupraExpress 33.6 Int Voice/Fax	$69
*Toshiba SCSI2 12X/15X CDROM	$119/149
*Toshiba 24X EIDE CDROM	$99
*Mitsumi 24X IDE CDROM$	$95
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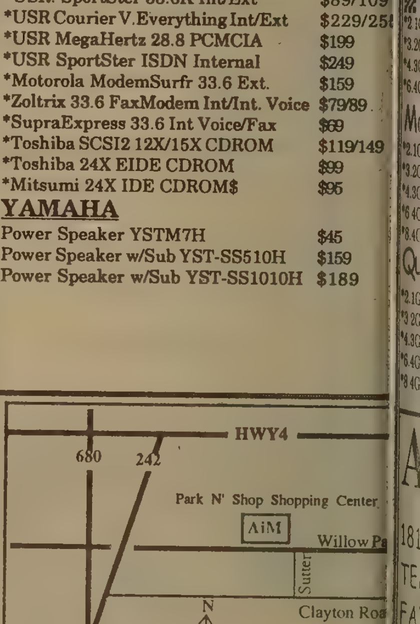

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- Intel Pentium® with MMX Technology
- Intel Tillamook Mobile Pentium® CPU READY
- Intel 430TX PCISet
- Up to 128MB EDO/SDRAM
- 512KB L2 Synchronous PB L2 Cache
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- Removable 20X CD-ROM
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- 3D Surround Sound and Wavetable
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**ASUS P6300 portable notebook.
Offering powerful desktop-like performance, P6300 features ASUS award-winning Smart Mainboard technology and comes equipped with Intel's 233MHz MMX mobile processor,
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advanced VGA technology like 3D Graphics and DVD playback and provides 3D Sound and NTSC/PAL Videos Output & Input.**

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ChemBook 2600

On Sale!

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- Cardbus and Zoomed Video Ready
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- Full Duplex Sound Card
- Removable 20X CD-ROM
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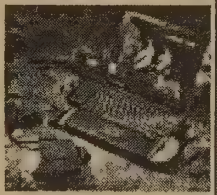
- Smart Battery with Gas Gauge



CPU	2.1GB HD	3GB HD	5GB HD
166MMX	$1850	$1999	$2279
200MMX	$1999	$2149	$2329
233MMX	$2049	$2179	$2399

*Chembook 2600 include 16MB Ram,20X CD Rom, FD Ni-MH Battery,AC adapter,Carrying Case, 12.1" TFT

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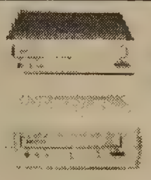
HEWLETT® PACKARD



*HP7110I 2x/6x Internal IDE CD Rewritable Drive $360
*HP7110E 2x/6x External Parallel CD Rewritable Drive $460

SONY

*Sony CDU-928E/H 2x/8x IDE,int. CD Recordable Drive w/DirectCD $329
*Sony CDU-928E/D 2x/8x IDE,int. CD Recordable Drive w/EZCDPRO$345
*Sony CSP-960 2x/6x SCSI, int. CD Recordable Drive w/DirectCD $369
*Philips Omniwriter 2x/6x int. IDE $389
*Ricoh Rewritable 2x/6x int SCSI $549
*Yamaha CRW4001 int IDE 6x read/4x record/2x rewrite $569
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*TDK CDR 74min (10 pak) $25
*Imation(3M) CDR 74 min (10 pak)$25
*Sony CDR 74min(10pak) $25
*Verbatim CDRW 74 min single $22
*Adaptec EZ CD Creator Deluxe Software $99

Make Your Computer Fun

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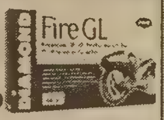

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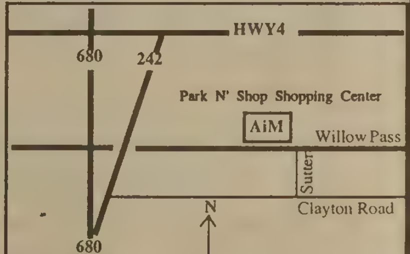

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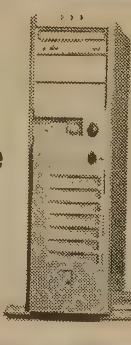

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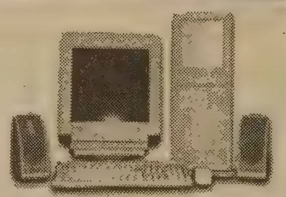

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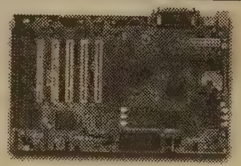

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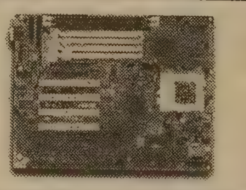

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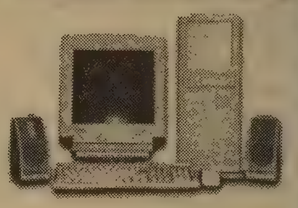

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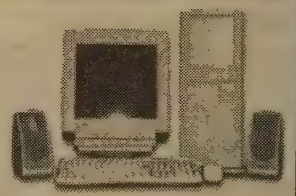

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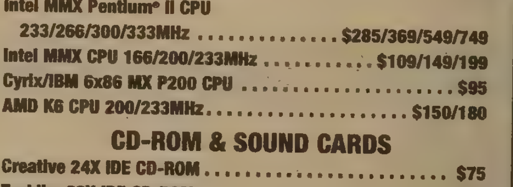

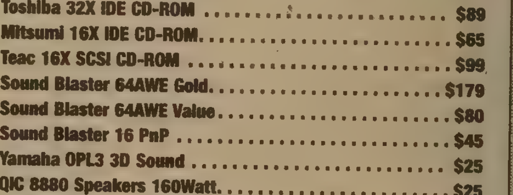

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Moving Your Web Site

Or, Learn From Our Relocation Adventure

By Mary Eisenhart

When we set up our Web site a few years ago, we opted to start with a relatively simple system and add features as demand warranted, rather than adopt elaborate high-overhead technology. We figured the resulting experience would not only be economical, but of practical relevance to our budget-minded readers interested in a relatively user-friendly do-it-yourself approach to Internet connectivity.

We started out running MacHTTP on an old Mac IIfx, and as the products evolved we've moved up to WebSTAR 2.1 on PowerMacs. On the whole, this has enabled us to run a Web site without hiring Web specialists, because maintaining documents, whether HTML files or searchable databases, is an easy extension of the work that's being done for our print edition, and it's easy to train the same people to do it.

Some time later, we put the same machine to work as an email server, using Eudora Internet Mail Server (formerly Apple Internet Mail Server) and Eudora Light, both freeware downloadable from *www.qualcomm.com* . We've found this combination both functional and easy to configure, though using it has pointed to numerous instances where it would be worthwhile to upgrade to commercial products (from Qualcomm or others) that, for instance, support access to multiple email accounts from the same machine. Client software is available for both Mac and Windows, so whichever platform is in use on a particular desktop, the employee gets email easily. While this system will not scale up indefinitely, it is robust enough to handle our predictable needs for the near term, and is also extremely well-suited for use on internal networks.

Over time we became increasingly dependent on reliable, real-time Internet connectivity, for everything from research to receiving digital ad files. So, when a move to a new office loomed last fall, we planned extensively. Some things worked better than others, and we hope you'll derive some benefit from our experience.

Your current Web site may be anything from a few pages on your ISP's machine to multiple gigabytes on some serious Big Iron in your MIS department. It may be located on a machine that's physically in your home office; it may be on a machine co-located at a premium fast-connectivity specialist. Sooner or later, as your own business and Internet commerce as a whole evolve, you'll probably need to move the machine housing your Web site. Here are some considerations for a smooth transition.

> The basic communications infrastructure of even a small office has become infinitely more complex and more interdependent since the days when you ordered up a POTS line and it just worked.

Rule #1: Plan

Months before you plan to move, make sure your new location has the necessary connectivity to support your planned activity. Your needs will vary depending on how much traffic your site generates, but avoid dead-end "solutions" that limit your ability to adjust to foreseeable growth. For example, a small or home office might find an ISDN line quite adequate to handle email *and* the office's Web traffic, but the technology doesn't scale up well; in our case, aside from the fact that we were moving from an office with a fractional T-1 connection and didn't feel we could get by with less at then-current traffic levels, the cost of individual ISDN lines to the desktops of everyone who needed Net access made the T-1/Ethernet alternative relatively attractive. A further advantage of the T-1 lines is that we're using a fraction of their capacity now and can get additional bandwidth from the existing network plumbing (at additional but incremental cost) as needed.

With the advent of cable modems, wireless, XDSL technology, etc., you have a dizzying array of options. Save yourself enormous misery by spending time with a knowledgeable Internet specialist who can help you define your present and future needs and configure a solution that addresses them appropriately—networking, Internet connection, support services, etc.

Rule #2: Don't Move From The Old Location Until You're Sure Everything In The New Location Works

This doesn't always work in real life. It's still a worthy goal, because if people can't find you on the Net you're not going to be doing business with them, so you want to minimize downtime.

Anticipate everything that could go wrong, including the ridiculous (for example, when we finally moved our server to its lovely new air-conditioned room, its Uninterruptible Power Supply beeped piteously and shut the computer down. After some hair-tearing we discovered that somehow nobody had told the building management company that we actually needed the power to the room's outlets turned on (*www.microtimes.com* ran for several days with a really silly-looking extension cord running down the hall to a functional outlet).

Moving your site from one location to another is going to require changing its net address—*and* making sure the name servers on the Internet are aware of the change so they direct the traffic appropriately. Your service provider should be able to handle this easily, but make sure you time the changeover to coincide with your need for the server to operate at the new site.

Perhaps most critical, before you unplug

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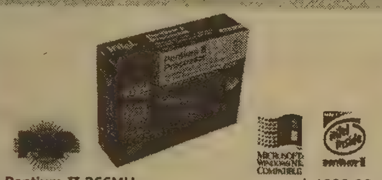

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- S3 Super VGA Video - 4MB
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- Logitech® Mouse - 2 buttons – Serial
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- Internal 24X Internal CD-ROM
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K6 233MHz Processor	$ 1149
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BIOSTAR® 430TX – 512K PLC MB	$ 89.98
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QDI® Titanium - 512K – 430TX	$ 109.00
QDI® Natoma Pentium Pro	$ 175.00
ASUS® TX97e - 512K PLC	$ 99.98
ASUS® P2L97 Pentium II Motherboard	$ 135.00
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Zoltrix® Rockwell® F/D/Speakerphone 33.6K	$ 65.00
US Robotics Sportster F/D/V 33.6K	$ 89.00
US Robotics Sportster F/D 56K	$ 149.00
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Moving Your Web Site *continued...*

anything at the old site, make sure the new address is reachable from the net. If you are uncomfortable with UNIX-y commands like ping and traceroute, get someone who isn't to perform these tasks for you. If you have the luxury of an extra machine, duplicate your server's files on it and run the duplicate site at the new address, just to make sure everything's working. But on no account remove the server from its old location until the router at the new site is successfully pinged (accessed and shown to be active on the Net).

Rule #3 Things Will Go Wrong Anyway. Have A Contingency Plan.

Having dutifully adhered to most of our own advice, we nonetheless had a noteworthy close encounter with Murphy.

Despite all the planning, moving day arrived and our new Net connection was dead as a doornail. Worse, due to various technological innovations, all our voice phones, internal networks, and fax machines depended on the same PacBell/MCI collaboration we were relying on for our Net connection, and initially they didn't work either.

This is not by way of pointing the finger at PacBell and MCI, who did eventually get things working properly and keep them that way. It's by way of pointing out that the basic communications infrastructure of even a small office has become infinitely more complex and more interdependent since the days when you ordered up a POTS line and it just worked. You'll weather assorted potential disasters much better for having a contingency plan that keeps things running until the problem's fixed.

In our case, it was two weeks before this glorious day arrived, although the internal network and the voice phones worked fairly early on. Meanwhile we had a issue to ship, with writers trying to send us stories, clients trying to send us ads, etc.

> Despite our never having set up Ricochets before, configuration was a snap—Metricom's software is easy to install and makes getting online a simple matter of a few mouseclicks.

What saved us during that deadline was twofold:

- Due to the generosity of our former affiliates, our Web/mail server remained up and running at the old building while all this was being resolved. Because of this, people could access our site, send us mail, etc. Still unresolved was the issue of getting the mail to the relevant desktops, now twenty miles from the server; we could move files within the office over the Ethernet, but we couldn't get out to the Internet at all.
- It was at this point that we threw ourselves on the mercy of Susan Kohl, Dauntless PR-oid, at Metricom (*www.metricom.com*). Many readers will recall our past coverage of Metricom's Ricochet technology, which offers low-cost, unmetered wireless access to the Internet using no-license radio frequencies. Susan sent us two Ricochets, each of which came with a dedicated Internet account.

Despite our never having set up Ricochets before, configuration was a snap—Metricom's software is easy to install and makes getting online a simple matter of a few mouseclicks.

We attached the Ricochets to two Macs with

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Mini Tower Case
Monitor Sold Separately
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Pentium® 166MMX	$570
AMD K6-166	$561
AMD K6-200	$616

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33.6 Fax Modem w/Voice
24X CD-Rom Drive
Keyboard
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AMD K6-233	$665

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DIMM 32MB	$65
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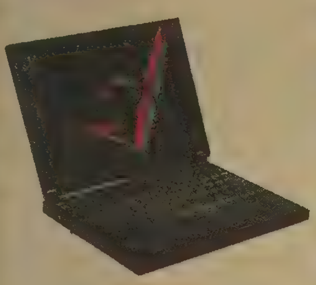

IBM

Model	Processor	Ram	HD	Screen	Price
ThinkPad 380	Pent-™/150	16MB	1.08GB	12.1 Dual Scan	$1634.
ThinkPad 380D	Pent-™/150	16MB	1.35GB+8X	12.1 Dual Scan	$1904.
ThinkPad 560	Pent-133	8MB	2.1GB	11.3 Dual Scan	$1632.
ThinkPad 560	MMX/150	16MB	2.1GB	Dual Scan	$2502.
ThinkPad 560	Pent-133	8MB	2.1GB	12.1 Active	$2720.
ThinkPad 560	MMX/166	16MB	2.1GB	12.1 Active	$3895.
ThinkPad 760XD	MMX/166	32MB	3.0GB+8X	12.1 Active	$4216.
ThinkPad 760XI	MMX/166	16MB	2.1GB	12.1 Active	$3423.
ThinkPad 760XL	MMX/166	32MB	2.1GB	12.1 Active	$3754.
ThinkPad 765D	MMX/166	32MB	3.0GB+8X	13.3 Active	$5240.
ThinkPad 765L	MMX/233	32MB	3.0GB	13.3 Active	$4897.
ThinkPad 770	MMX/233	32MB	4.0GB	13.3 Active	CALL
ThinkPad 770	MMX/233	32MB	4.0GB	13.3 Active	CALL
ThinkPad 770	MMX/233	32MB		13.3 Active	CALL
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220CDS	Pentium™/133	16MB	1.34GB+10X	12.1" Dual Scan	$1898.
430CDT	Pentium™/120	16MB	1.2GB+10X	11.3" Active Clr.	$1618.
440CDX	P133-MMX	16MB	1.34GB+10X	12.1" Fast Scan	$1518.
440CDT	P133-MMX	16MB	1.34GB+10X	12.1" Active Clr.	$2378.
460CDT	P166-MMX	32MB	2.02GB+10X	12.1" Active Clr.	$2798.
480CDT	PII 233MMX	32MB	3.82GB+10X	12.1" Active Clr.	$3798.
3600CT*	486 DX2-50	8MB	250MB	8.4" Active Clr.	$998.
3600CT*	486 DX2-50	8MB	500MB	8.4" Active Clr.	$998.
650CT	Pentium™/133	16MB	1.2GB	11.3" Active Clr.	$2098.
660CDT	Pentium™/150	16MB	1.35GB+10X	11.3" Active Clr.	$1938.
300CT	P133-MMX	32MB	1.51GB	10.4" Active Clr.	$2378.
510CDT	Pentium™/133	16MB	2.1GB+10X	12.1" Active Clr.	$1998.
520CDT	P166-MMX	32MB	2.02GB+10X	12.1" Active Clr.	$3048.
530CDT	P166-MMX	--MB	3.87GB+10X	12.1" Active Clr.	$3888.
730XCDT	P150-MMX	16MB	2.1GB+6X	12.1" Active Clr.	$2398.
740CDT	P166-MMX	16MB	3.0GB+10X	13.3" Active Clr.	$2498.
740CDT-NT	P166-MMX	16MB	3.0GB+10X	13.3' Active Clr.	$3328.
740CDT	P166-MMX	16MB	2.1GB+10X	13.3" Active Clr.	$3328.
750CDT	P233-MMX	32MB	4.77MB+20X	13.3" Active Clr.	$4848.

*SubNotebook

Hitachi Notebooks

Model	Processor	Ram	HD	Screen	Price
4140X	Pentium™/133MMX	16MB	1.4GB+20X	12.1" Dual Scan	$1639.
7340	Pentium™/133MMX	32MB	1.4GB+10X	12.1" Active Clr.	$2010.
7360	Pentium™/166MMX	32MB	2.2GB+10X	12.1" Active Clr.	$2978.
7560	Pentium™/166MMX	32MB	3.2GB+10X	13.3" Active Clr.	$3967.
7580	Pentium™/233	32MB	3.2GB+20X	13.3" Active Clr.	$4952.

COMPAQ LAPTOPS

Model	Processor	Ram	HD	Screen	Price
1550DMT	Pent-™/133	16MB	1.4GB+10X	12.1" Active Clr	$2378.
1530DM	Pent-™/133	16MB	1.4GB+10X	12.1" Dual Scan	$1868.
4131T	Pent-™/133	16MB	1.4GB	12.1" Active Clr	$1898.
4150	Pent-™/150MMX	16MB	1.6GB	12.1" Dual Scan	$2088.
4160T	Pent-™/166MMX	16MB	2.0GB	12.1" Dual Scan	$3178.
4160TSL	Pent-™/166MMX	16MB	2.0GB	12.1" Active Clr	$3368.
7330T	Pent-™/150MMX	16MB	2.1GB	12.1" Active Clr	$3088.
7350MT	Pent-™/166MMX	32MB	2.1GB	12.1" Active Clr	$3548.
7710MT	Pent-™/150MMX	16MB	1.6GB	12.1" Active Clr	$2618.
7730MT	Pent-™/166MMX	32MB	2.1GB	12.1" Active Clr	$4108.
7750MT	Pent-™/166MMX	32MB	3.0GB	12.1" Active Clr	$4671.
LTE5400	Pent-™/150	32MB	2.16GB	12.1" Active Clr	$3048.

COMPAQ DeskPro Desktops

Model	Processor	Ram	HD	OS	Price
DP-2000	Pent-™/166MMX	16MB	2.1GB	Windows 95	$951.
DP-2000	Pent-™/166MMX	16MB	3.2GB	Windows 95	$984.
DP-2000	Pent-™/200MMX	16MB	2.1GB	Windows 95	$1016.
DP-2000	Pent-™/200MMX	32MB	3.2GB	Windows 95	$1168.
DP-2000	Pent-™/233MMX	32MB	3.2GB+16X	Windows 95	$1571.
DP-2000	Pent-™/233MMX	32MB	2.1GB	Windows NT 4.0	$1662.
DP-2000	Pent-™/233MMX	32MB	3.2GB+24X	Windows NT 4.0	$1888.
DP-2000	Pent-™/266MMX	32MB	3.2GB+24X	Windows NT 4.0	$2095.
DP-2000MT	Pent-™/166MMX	32MB	3.2GB+16X	Windows 95	$1276.

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Model	Processor	Ram	HD	Oper.Sys.	Price
VL5	MMX/166	16MB	1.6GB	W-95 / WFW	$932.
VL5	MMX/166	16MB	1.6GB	W-95 / WFW	$1110.
VL5	MMX/166	16MB	2.5GB+24X	W-95 / WFW	$957.
VL5	MMX/166	32MB	2.5GB	W-NT 4.0	$1127.
VL5	MMX/200	16MB	2.5GB	W-95 / WFW	$1034.
VL5	MMX/200	32MB	2.5GB	W-95 / WFW	$1204.
VL5	MMX/233	32MB	2.5GB	W-95 / WFW	$1339.
VL5	MMX/200	32MB	2.5GB+24X	W-95 / WFW	$1254.
VL5	MMX/233	32MB	2.5GB	W-95 / WFW	$1254.
VL6	Pent-II/233	32MB	2.5GB	W-NT 4.0	$1551.
VL6	Pent-II/233	32MB	2.5GB	W-95	$1449.
VL6	Pent-II/266	32MB	2.5GB	W-NT 4.0	$1797.
VL6	Pent-II/266	32MB	2.5GB	W-95	$1695.
VL6	Pent-II/266	32MB	2.5GB	W-NT 4.0	$1882.
VL6	Pent-II/266	32MB	4.0GB+24X	W-NT 4.0	$2179.
VL6	Pent-II/300	32MB	4.0GB	W-NT 4.0	$2170.

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good proximity to windows, since their nominally 28.8bps performance can be significantly better or worse depending on line-of-sight and proximity to the nearest repeaters. Fortunately for us, downtown Oakland, particularly on the 8th floor with a clear view of the Sutro Tower, gets quite presentable reception.

With our new-found ability to access the Internet from these two machines, we were able to access the queued-up mail and Sneaker- or Ethernet it to its proper recipient. (This allowed us leisurely contemplation of why we should have upgraded to Eudora Pro, which supports multiple mailboxes on a single CPU and would have saved us a lot of manual reconfiguration on those two machines as we sequentially downloaded everybody's mail.)

Once again we could interact with the digital world. The issue shipped. Life was good. And eventually our Internet address was actually pingable.

Rule #4: Back Up *Everything*

So at that point, moving the server became an option. I drove to the old office, called Paul Hoffman to do his Internet wizardry to change the address, and by the time I had the machine back to Oakland and changed its address in the various config files, getting it up and running was simply a matter of plugging it into the wall and the Ethernet port.

> Perhaps most critical, before you unplug anything at the old site, make sure the new address is reachable from the net. If you are uncomfortable with UNIX-y commands like ping and traceroute, get someone who isn't to perform these tasks for you.

That is, after we'd resolved that pesky problem with the wall outlets.

And there it's been running in fairly problem-free fashion ever since.

(Your mileage may vary considerably about the speed of the address change, so work closely with your provider on this.)

It should be needless to say that we backed up the server before we moved it, but we reiterate: Back Up Everything. Consider how long it's taken you to build up all those extremely interdependent files on your Web site, consider how long it would take you to reconstruct them, and just do the backup.

Ideally, you'll never need it, but the ideal and the moving experience rarely converge. In our case, we failed to back up exactly one ancient desktop computer. It goes without saying that this is the one machine that chose to die during the move, taking the sole copy of a small but important file with it and defying the most determined efforts of Norton Utilities to recover the file.

In summary, good planning can make moving your Web site a painless process. Good contingency planning can make the inevitable complications survivable. ■

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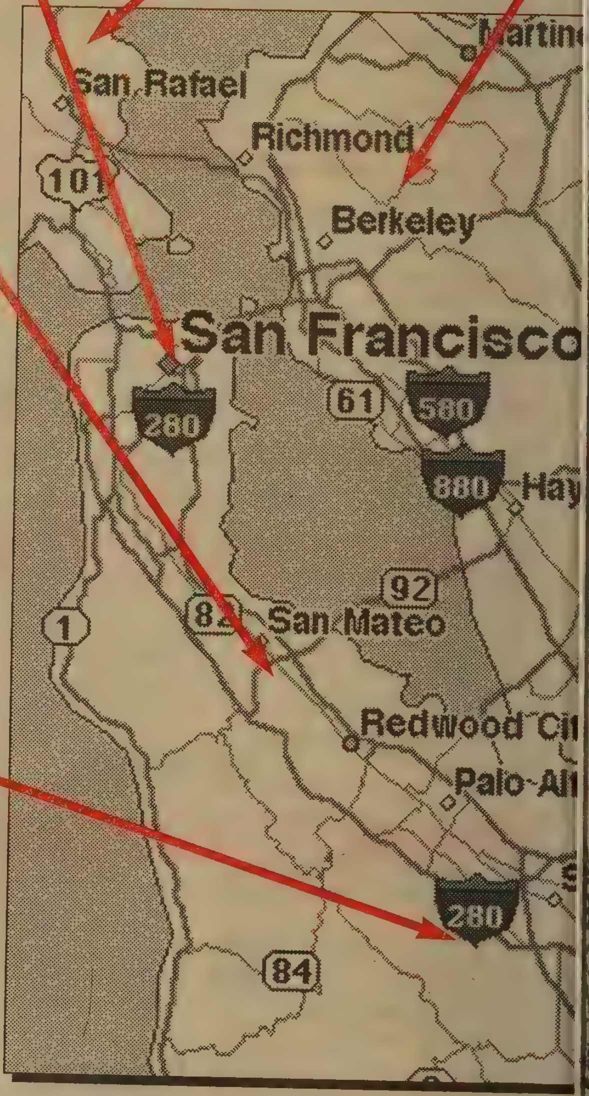

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iPrint Takes Custom Printing Online

By Mary Eisenhart

Editor's Note: The alert reader will observe that Royal Farros, founder and CEO of iPrint, is also the author of our Internet Startup series, with iPrint's evolution serving as a foundation for the discussion. Filter accordingly, but we think iPrint is doing interesting stuff that's worth bringing to our readers' attention.—ME

It's late January at *www.iprint.com*, and the monitor screens are a-flicker with orders for the company's latest product offering: customized Valentine Post-It™ notes. Romantic ingenuity abounds amid the usual brisk trade in business cards, letterhead and rubber stamps.

The walls of the NASA-surplus offices, covered with samples of its clients' business cards ordered from iPrint's Web site, attest to the growth of the small-business sector—from a self-styled soldier of fortune "available for dangerous assignments worldwide" to more conventional tax-preparation, landscaping, and pet-sitting services. There's also a healthy representation of corporate types and government workers, with IRS agents especially prominent.

A Better Way To Buy Bizcards

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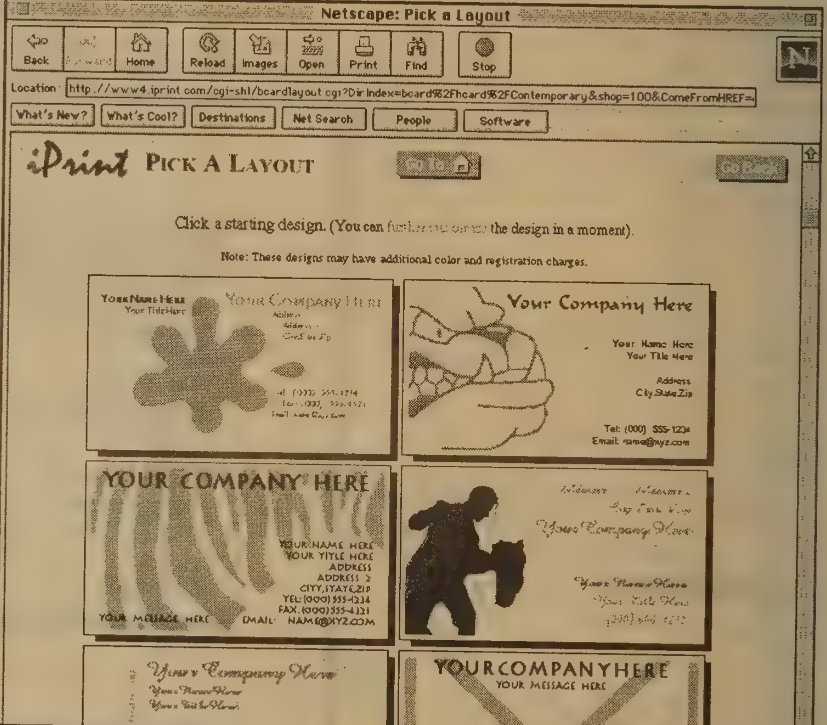
continued on page 128



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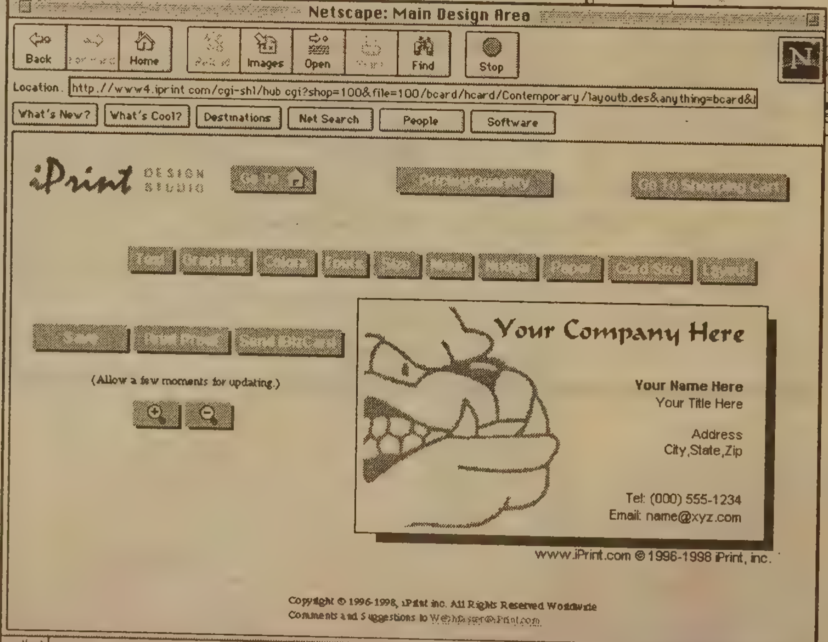

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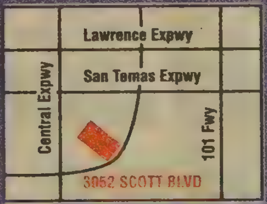

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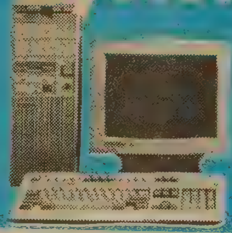

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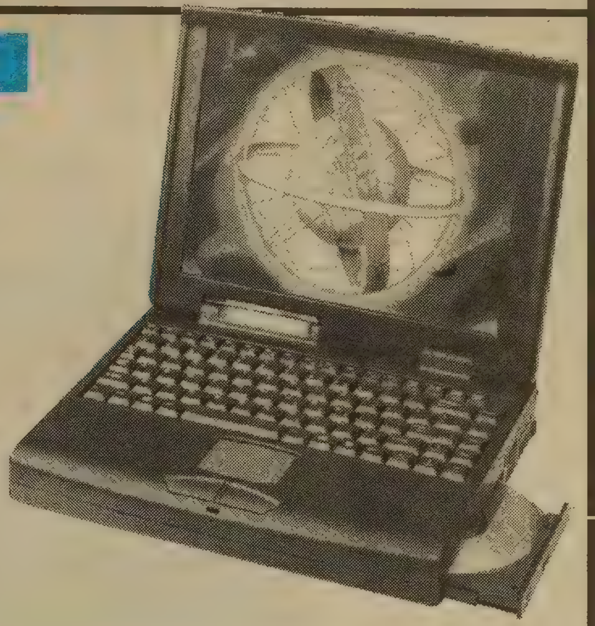

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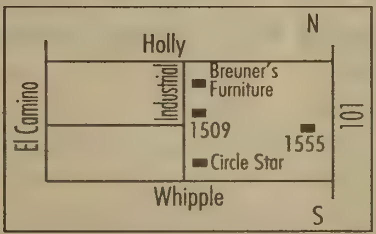
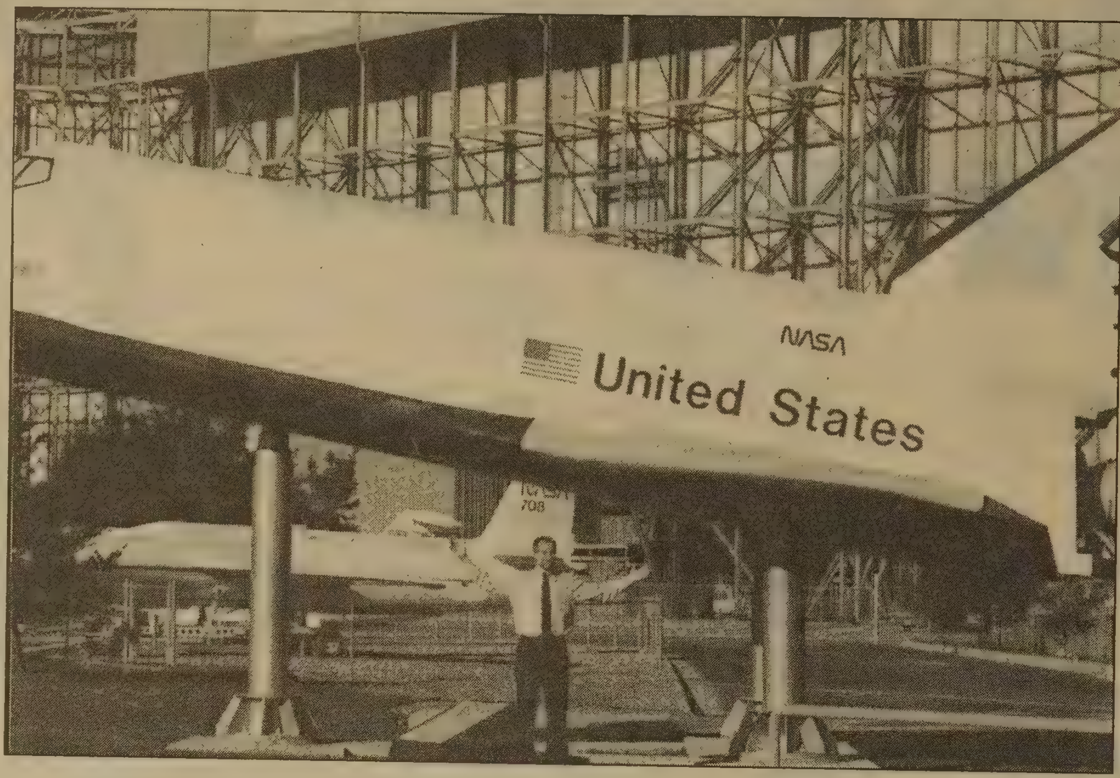


The Virtual Stationery Shop *continued from page 124*



Left: To infinity and beyond—Farros drawing inspiration outside iPrint's offices.

The walls of the NASA-surplus offices, covered with samples of its clients' business cards ordered from iPrint's Web site, attest to the growth of the small-business sector—from a self-styled soldier of fortune "available for dangerous assignments worldwide" to more conventional tax-preparation, landscaping, and pet-sitting services.

and colors, tweak the placement and spacing of the type. You can use a graphic from iPrint's library of clip art (judging from the wall, the paint splatter seems especially popular) or upload one from your own computer (in which case you're advised to use only 1-bit monochrome art, avoid low-res images, and keep the file under a megabyte for best results).

Once you've got the card the way you want it, with just the right ink and paper and typeface and layout, you can transplant your design to stationery, envelopes, etc., and make whatever adjustments are appropriate to the different form factors. Then you fill out your credit card info, mailing address, and similar practical details, and mouseclick your order off to its destination. Turnaround time before your order arrives on your doorstep, according to Farros, varies from one day for single-color, flat-ink business cards to under a week for custom Post-Its.

"Whether you want to look at convenience, cost, timeliness, error-rates, quality, whatever... iPrint is just *much* better than the outdated approach used by traditional printers today," says Farros, watching the monitors as customers order their personalized paper. "Quite frankly, in the same way as it would be silly to compare a word processor to a typewriter, comparing iPrint to the old, manual way of ordering print is pretty one-sided."

Print Shop Goes Virtual

"We think we're going to create the same sensation that the bank ATM did," he adds. "We want to revolutionize the way print buyers work with commercial printers. We're after a $20 billion industry that's still using decades-old technology—the whole process has been begging to be improved since before some of our customers were even born."

iPrint exemplifies a type of fast-moving business-to-business Internet commerce that takes advantage of the ability to specialize and to form quick ad-hoc relationships as necessary—i.e. it has a number of "virtual corporation" qualities, and a global scope.

The actual printing is not done in what Farros calls the Stalag 13 building that houses iPrint; the company's unique contribution to the mix is the unprecedented ease of use offered by its proprietary software, which offers an easy link between the products and services of various print shops and the customers who would otherwise be overwhelmed with options and jargon. Just as Amazon.com unites a host of independent book dealers under a single "storefront" operation, iPrint funnels business to several different printers with different specialties to ensure the best price/performance ratio—so that, for example, the press that specializes in Post-Its doesn't have to be expensively reconfigured for a run of letterhead.

Further focus-based economies are achieved by the fact that traditional vendors are rushing to embrace iPrint as an ally rather than battle it as a competitor. Office Max and Sir Speedy are already on board, offering iPrint-based ordering in their stores; other large chains are in lively negotiations.

As to ongoing business opportunities—"It's a wonderful time to be in the online printing business!" enthuses Farros. Just think, he says: "There were 21 area code changes in the US for 1997; another 30 planned for 1998, and more in 1999. That means almost every piece of business printing has to be redone in the next few years, starting now. This phenomenon isn't limited to the US, either—Japan has just changed from a 3-digit to 8-digit zip code, so every piece of business printing has to be reprinted in Japan, too."

iPrint's experience, since opening about a year ago, suggests that a strategy of specialization and creating win-win relationships is far likelier to be successful online than a hidebound adherence to traditional business culture. "The Internet is a tidal wave of opportunity," says startup zealot Farros. "It's an amazingly wild adventure for those surfing the wave; it will be devastatingly destructive for those traditional businesses on the beach wondering what all the fuss is about." ■

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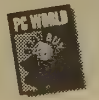

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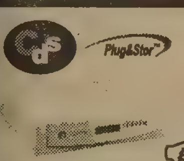

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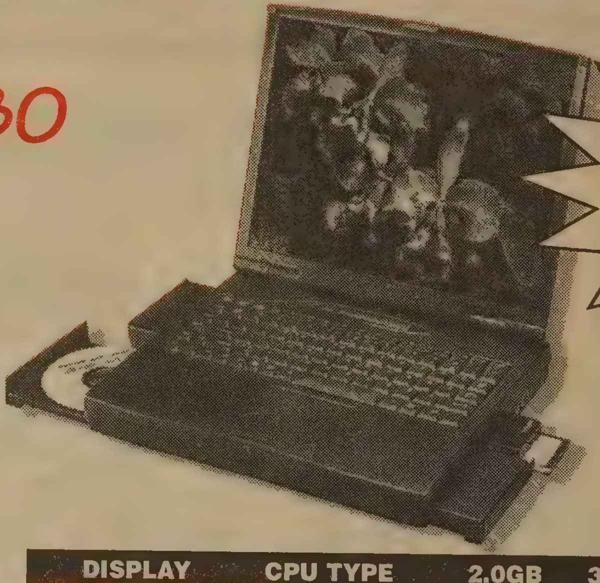

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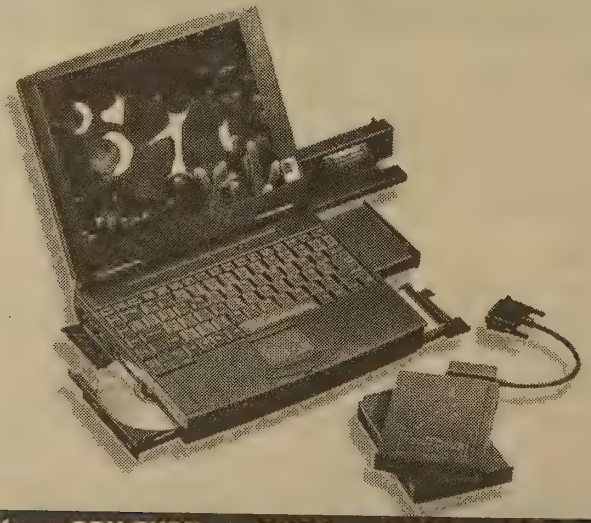

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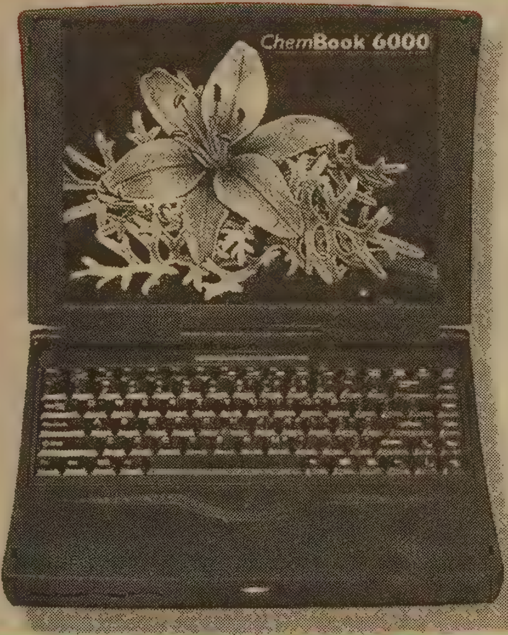

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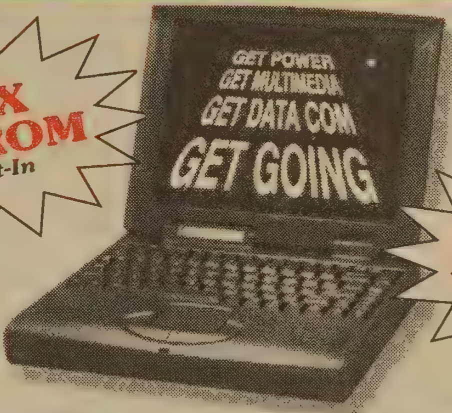

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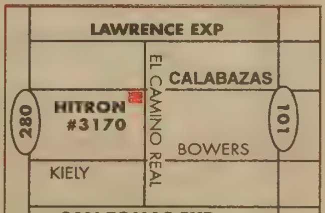

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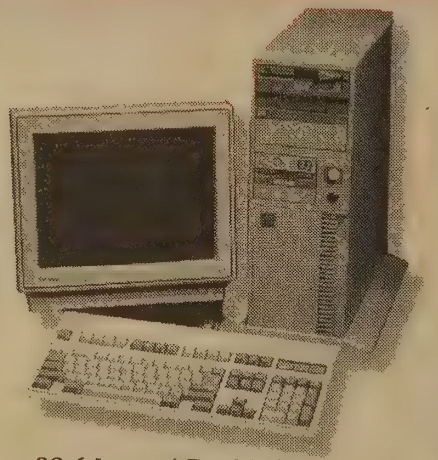

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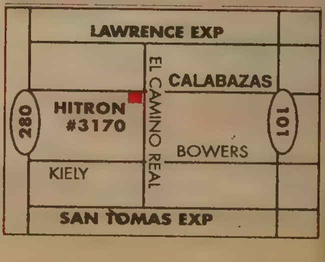

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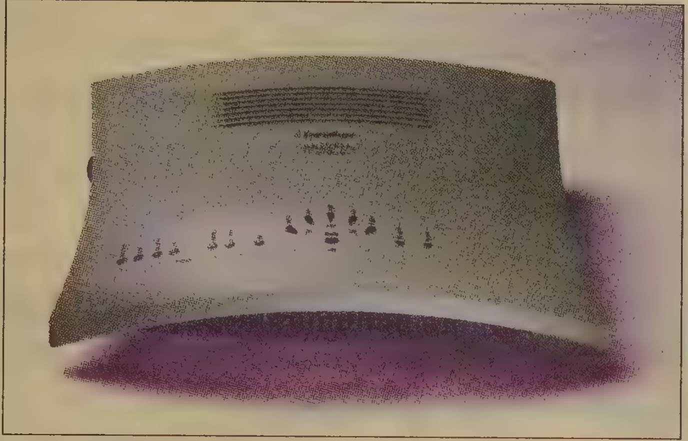
Speeding Up The Small/ Home Office Network

ISDN+Ethernet From Farallon

By Tony Reveaux

Perhaps the most remarkable thing about the explosive growth of the World Wide Web is that is has become so popular while, for most users, it is so very slow. In the age of instant TV, the Internet strains our patience even as it lures our curiosity and whets our interest for more.

Faster modem speeds, cable modems and other telecommunications schemes may promise quicker relief, but remain ever elusive. The Internet's universality stems from the fact that it travels worldwide carried on copper POTS (plain old telephone services). Cable modems will at best be isolated, scattered exceptions rather than the rule.



The Netopia ISDN Router 435

The Need For Speed

ADSL technology, or asymmetric digital subscriber line, is a new proposed standard that would offer online access at speeds up to 30 times faster than those realized over a 56K modem. At least a year away from general implementation, ADSL may not be provided consistently by all carriers, and will probably be too costly for the average user.

While neither cheap, easy, nor available everywhere, ISDN (Integrated Services Digital Network) is here now. ISDN is an all-digital high-bandwidth dial-up connection technology that can simultaneously transmit voice conversations and data calls over the same pair of channels on POTS wires. ISDN supports speeds of up to 128KBPS, uncompressed—more than four times faster than 28.8KBPS analog modems—and the performance is more reliable. ISDN is used by individuals, and by businesses from SOHOs to corporations, for more efficient and speedier transmissions.

Using the Internet is a dynamically fluid exchange between source and receiver. If the page you are trying to read is coming from a host server that's a heavily subscribed and overburdened desktop PC, drilling for data can be like pulling sap from a sugar maple.

Is there any way to further enhance the speed of your Web watching experience even after you have ISDN? You can start at your own desktop machine. No matter what transmission speed you are on, the more powerful the processor is, the faster it will be able to write the received bits to the screen of the page you are reading. I have noticed my Web surfing becoming snappier now that I'm using a PowerPC 8600/300 instead of a 100 MHz Mac.

If the page you're trying to read is coming from a host server that's a heavily subscribed and overburdened desktop PC, drilling for data can be like pulling sap from a sugar maple.

There's yet another quantum leap you can make at the hardware level when you add Ethernet to the ISDN within the same device, as in a Farallon Netopia ISDN router.

ISDN + Ethernet

Ethernet (usually "thin" Ethernet) uses coaxial cable—like what is used for cable television—with switching and repeater hubs for transmitting local area network (LAN) traffic at speeds up to 10Mbps. Ethernet is standard in most Macs and can be added to a PC with an Ethernet card. It greatly enhances the network performances of servers, terminals and devices like printers and renderers. Ethernet is used in applications like digital video broadcast editing suites.

ISDN routers take advantage of both Ethernet and ISDN. The extensive Netopia line from Farallon has models available for both Macs and PCs. I have been working with a Netopia 435 ISDN Ethernet router as a single user on a Mac, and find it brings in the Web much faster than a regular ISDN modem. At times it approaches the speed of cable modems I've seen in demos.

A router is a device which intelligently connects networks to each other. They can be identical or dissimilar network types, facilitated by gateways, such as LocalTalk to Ethernet. They can also connect a LAN to a WAN (Wide Area Network) or to high-speed T-1 and T-3 lines with the appropriate cards and connectors. They're

Speeding Up *continued...*

primarily designed for sharing resources among multiple users, e.g., in an office.

As in the Netopia line, all users on the network can have their own dial-up ISDN Internet connection simultaneously. Thus, even for two users in a small/home office, sharing one ISDN Ethernet router resource can be as economical, or more so, than two regular ISDN modems.

The Router Limits

But for a single user, wouldn't an Ethernet modem, or an ISDN single Ethernet modem, be more economical than going up to a router?

I asked Farallon product manager Barbara Tien about the underlying technologies for these communication options.

"For the 56K Ethernet modem," she explains, "the top speed the modem is able to do is 52K in either direction. The limitations on the serial port are typically in the neighborhood of 70K-80K. That's where you start to run into trouble. For just a single modem you're not going to see any better performance in the Ethernet connection." These modems use Ethernet to enable a terminal or device be able to share into the LAN or WAN that is linked by Ethernet. It's the device-to-device performance that makes Ethernet such a superior networking connection. By itself, it can't give you more speed from the Internet. What Ethernet does for ISDN within a device like a Mac or PC is allow the signal to bypass the computer's internal bus architecture, enjoying a more direct connection.

For a router architecture, "We don't save anything in terms of cost," adds Tien, "because all the hardware is the same whether it was configured for one user or many users. The limitations on the number of users is determined by how the IP is set up. We can upgrade the same router architecture from 29 to an unlimited number of users by just turning on a feature set in the router.

Ethernet is standard in most Macs and can be added to a PC with an Ethernet card. It greatly enhances the network performance between servers, terminals and devices like printers and renderers.

"As a design goal, we have put performance as a very high requirement. A product could be made more cheaply, but you would lose some of the performance advantages and the ability to easily upgrade it to more users, to an enhanced interface or to a full-time connection instead of a dial-up, or to host a Web site. By replacing a daughter card you could bring it up to a fractional T-1 connection that could take you to speeds of anywhere from 128K with ISDN to 1.5Mb [megaBITS instead of megaBYTES, hence small b]."

Netopia

The sleek, sloping UFO-ish Netopia shell sports an array of LED indicators that continually report on distributed assignments and activities. The device's back panel has two EtherWave jacks (RJ45 ports) for EtherWave (10BaseT, Ethernet) connections, an AUI port for an Ethernet connection, a Telco port for an ISDN, T-1 or DDS/ADN connection, and a console port (mini-DIN-8 port) for connection to a PC or Macintosh console (stand-alone desktop terminal). This

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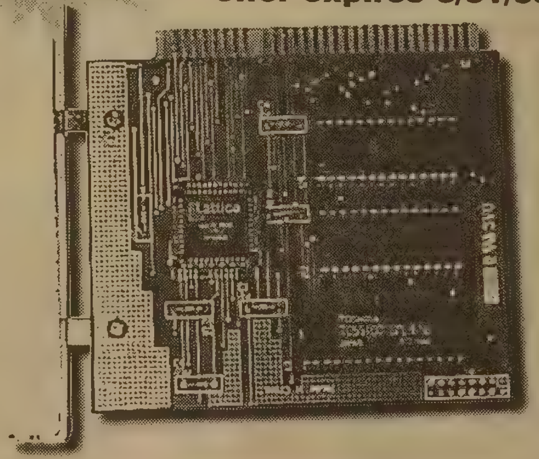

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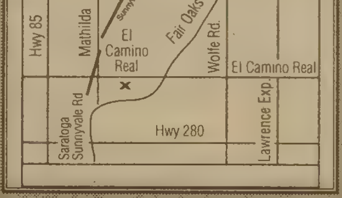

Speeding Up *continued...*

supports multilink Point-to-Point Protocol (PPP) allowing you to transfer data simultaneously on both 64K data channels on the ISDN line.

Dual RJ-11 telephone POTS ports allow you to attach analog devices, and support such activities as being able to talk on a voice line, send and receive faxes, and be online at the same time. The side panel reveals a PC Card slot for a modem card connection, used for remote configuration. Reflecting the company's Macintosh heritage, the Netopia includes both LocalTalk and AppleTalk routing with a PhoneNET port.

Configuring anything for ISDN, let alone a router, can be daunting, but I have found all the Farallon technical support to be excellent. The four-pound "Getting Started" manual is that bulky because it provides the materials in English, French, German and Japanese. Included is the Netopia Internet Starter Kit CD-ROM for Mac and Windows, which has all the documentation and SmartStart configuration software, and it has Microsoft Internet Explorer, Netopia Virtual Office, the Timbuktu Pro remote management utilities and other goodies.

The Netopia 630 ISDN Ethernet router is limited to fewer (29) users and doesn't have POTS, but has the same performance as the 435 and retails at about $500-600. With an SRP of about $1,300, the Netopia 435 model is one of those supported by the Farallon SmartStart Web Management configuration. Using this path, you can configure your router for connection to the ISP, IP addresses and remote Internet gateways, a served IP address pool, IPX network services and AppleTalk, where applicable.

For the Macintosh, telnet through the included ZTerm is the more direct route for configuration. Familiarity with the telnet access can be helpful for testing and changing things like dial-up access numbers.

For those who want to offload the whole configuration experience, especially those who are starting up, Farallon offers the Up & Running Guaranteed! service. Starting at $495 a year, it takes charge of the entire process, helping you to choose the telephone, Internet and ISP services that fit your needs. They dial into your Netopia router and configure it to work with all that and your LAN, set up a workstation on your network, and help to configure the rest of your PCs on the LAN. Demonstrating that they are firmly committed and connected to the Internet, Farallon offers a widening selection of online upgrades, some of them automatic. It's the next best thing to the Star Trek transporter option.

Reading Material

At four-and-a-half pounds, Tom Sheldon's *Encyclopedia of Networking: Electronic Edition* (LAN Times Osborne, 1164 pp, $49.99 + CD-ROM) covers the vast, expanding world of networking terms and technologies. It alphabetically lists and explains in great depth and detail key networking concepts assisted by many clear diagrams. Everything is there—UNIX, Windows, Mac OS, NT, Novell, NetWare, IBM; it identifies the obscure and rarely seen as well. It is up-to-date with concepts such as netcasting and Marimba (but not ASDL). What can keep it up-to-date are the links to sites and white papers on the CD-ROM. There you will find the complete searchable text and more resources and illustrations.

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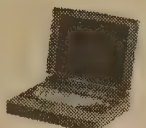

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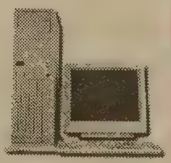

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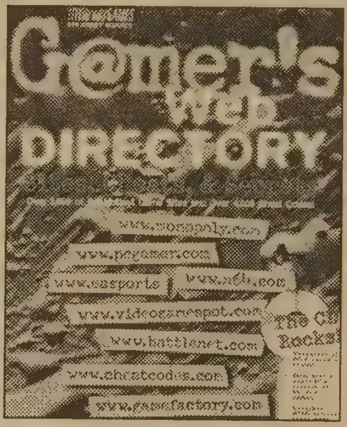
With all this netting, you probably could use a break. Pick up the *G@mer's Web Directory: Sites, Cheats and Secrets* by Marc Saltzman (BradyGAMES, 272 pp, $19.99 + CD-ROM). The book is a guide to the sites for Internet games, PC and console games, as well as classic board games and more. The CD-ROM has enough hacks and over 4,000 cheat codes to help you strike instead of struggle. You'll also find trial versions of new games. Whoops—don't let this get on the office network! ■



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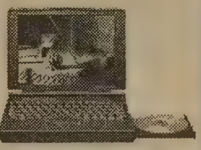

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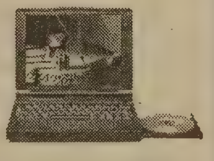

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BMUG Status Report

"Censorship" And The Kindness Of Volunteers

By Peter Linde and Sam Penrose

This month, Sam talks about the joys of censorship, while Peter provides updates on what's going on at BMUG.

The Joy of Censorship

By Sam Penrose

I'm a censor. Every day I log onto a publicly accessible computer network and scan a portion of the new posts. If I find any of them inappropriate, I prevent it from being read. I do this on a volunteer basis because I believe censorship is valuable work and because I enjoy it. I am proud of the inconsistency and inefficiency with which my fellow censors and I perform our duties.

Earth To BMUG

The network in question is Planet BMUG, a BBS managed by my co-author with the help of volunteers like me. BMUG members use Planet's conferences to discuss everything from computers to movies to religion.

Conference moderators facilitate and occasionally censor the discussion. If you ask about Dutch Elm disease in the Modems conference, a moderator will forward your question to Gardening. If you repost the latest MicroTimes cover story in Hardware, a moderator will "disallow" it (make it unreadable) and send you a gentle reminder about copyright law. In technical conferences, the moderator will often have some expertise and serve as a public resource.

Moderators also enforce Planet BMUG's Online Etiquette Policy:

1) Planet BMUG is a family-oriented BBS. Please do not post words or images commonly considered obscene.

2) Personal attacks of any kind are expressly prohibited on Planet BMUG. Do not engage in personal attacks or cast aspersions, either publicly or privately directed at an individual or group. Hostile or aggressive posts will put your Planet BMUG account and BMUG membership at risk."

We Have Met The Enemy, And He Is Us

Planet BMUG conference moderators come from the general membership. The selection process is casual to a fault. Typically it becomes apparent that a conference needs a moderator when a debate arises within the conference over some administrative matter and no one can remember who the moderator is. Someone gets drafted to be the new moderator and emails the Administrator, who gives her privileges.

Six weeks later, an innocent question about video editing sparks a VHS-versus-Betamax debate. One frustrated VHS partisan blames the dispute on the limited intellectual capacity of Betamax users. A Betamax fan replies that the grandmother of the VHS advocate wears combat boots. Four-letter words get thrown around. The new moderator logs on to find her first flame war.

What happens next is mainly up to her. She probably disallows the posts containing cuss-words and asks their authors to delete them, since cussing is a clear violation of the rules. She may disallow some or all of the other belligerent posts. She probably tells everyone to cool it. If the topic is inappropriate to the conference (a VHS-versus-Betamax debate in books), she may declare it closed. Finally, she informs the other moderators about the events and her actions in a private conference which exists partly for that purpose.

You might object that four-letter words are not (per Planet's Policy), "commonly considered obscene," and I would agree with you. ("Obscenity" refers to what makes a movie X-rated, whereas cussing just makes it R-rated.) The real rule is that you can't cuss, and it exists because BMUG's core members agree on it. The official policies change periodically, but their formulation never quite spells out what actually will and will not get disallowed.

The gap between theory and practice arises in part from the different ways individual moderators interpret concepts like "aspersion" and "obscenity." One moderator will disallow a mildly naughty bathroom joke, and the other moderators will complain that he's overreacting. Some will allow you to complain that your hard drive is "all f%^&*d up" while others won't. Many will allow you to ask what the hell is going on with Apple, but none will let you tell someone else to go to hell. Most will ignore sexual references if you don't use any "dirty" words, but some won't.

Any given decision has a good chance of drawing dissenting commentary from another moderator. Some will split the group in half.

> "This may sound like the worst kind of tyranny: A bunch of unelected amateurs making arbitrary decisions about who gets to say what when. I think it's closer to an ideal."

Inconsistency Is Beautiful

This may sound like the worst kind of tyranny: a bunch of unelected amateurs making arbitrary decisions about who gets to say what when. I think it's closer to an ideal.

MicroTimes and its media brethren have spent the last five years bludgeoning their readership with a simple equation: Censorship Is Evil. That's great for opposing clueless government regulation of the Internet, but it doesn't scale down.

Most of us want freedom on the global level, but in our neighborhoods we are more concerned with striking a livable balance between tolerance and decorum. You may swear like a soldier when you stub your toe getting out of the shower, but you don't at the dinner table (at least not when your in-laws are there). What's considered appropriate at a given time and place depends on culture, setting, personalities, the flow of events, BMUG's Choice for Macintosh Specialty Store ...Since 1985

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and whim. Sometimes you let things go. Other times you draw a line. You're not always sure you made the right call. You certainly can't codify your reasoning.

Striking the right balance is especially hard online, because communication works differently. Normally unspoken understandings have to be spelled out, and momentary breaches of decorum are frozen for days where all may read and overreact to them. If someone crosses a line, you must ignore the offense or issue an explicit rebuke, where in the real world a clearing of the throat or pointed look might be more effective.

Rules and lines of authority serve a purpose in cyberspace, but Planet BMUG depends on a large, shifting, semi-randomly chosen subset of the community to establish norms by playing out its various beliefs and impulses in all their conflicting, muddle-headed glory. The fact that censorious actions are open for debate by a large and independent-minded group of peers keeps censorship reluctant, conservative, and reflective of the community's values—which is the way it should be. Some might prefer an energetic, efficient censor who enforced rigid standards, or Usenet-style freedom in which those who shout loudest, longest, and most crudely dominate a conversation not worth having. I sure wouldn't.

To tour Planet BMUG from the Internet, download FirstClass ClientSoftware from *www.softarc.com/download/index.html* . (I recommend that you download both version 3.5 and the updater to 3.51; run the updater before connecting.) Set "Connect via" to TCP-IP.FCP, TCP port to 510 or 3004, and server to "*bmug.org*" (without the quotes, of course!). For direct dial, the phone number is (510)849-2684. Planet BMUG also supports command-line access via terminal emulation programs. Download the FirstClass Client if you can; it provides an elegant, finder-like interface.

Apple Help Site Update

In *MicroTimes* #174 (*www.microtimes.com/174/bmug.html*), I described Apple's help site at *www.apple.com/support/* as a work very much in progress. If you haven't been there recently (or if my criticisms discouraged you from going at all), take another look. The elves have been hard at work making the site less confusing and more useful. Good job, Apple.

Status Report: BMUG And The Mac Community

By Peter Linde

You may have heard that BMUG has been going through some changes during the last few months. With the help of a new board of directors and a new executive director, we have been conducting a careful review of just about every aspect of the organization. We've found that BMUG has spent too much time resting on its reputation as being the first, the biggest and the best Users Group in the world, and not enough time making sure that our products and services meet or beat those claims.

If you are already a BMUG member, you will want to read what follows to learn more about how BMUG is growing and changing to meet your needs. If you are not yet a member, the information that follows will help you become better acquainted with the cool things that BMUG does.

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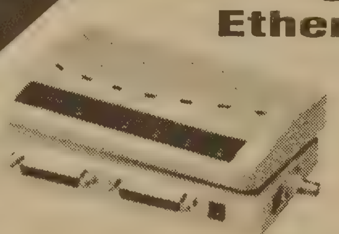

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Expect to see some changes in your favorite Users Group. Some of these changes are, and will be, obvious. Some are not so apparent, yet are just as crucial to the survival and growth of the organization.

As I write this, the board is working on a new business plan (the first in BMUG's history) that will guide us as we continue to grow and serve the world's need for a Macintosh-centered community that exists to share information and help everyone get the most out of their Macs.

The Kindness of Volunteers

Probably the biggest change that is happening is that we are getting back to our volunteer roots. BMUG has always depended upon the kindness of volunteers, but in the last few years, we lost some of that identity as we grew.

It's time to get back to basics and begin relying on volunteers again. It's the volunteers that make this organization what it is, and we need to rely on volunteers to fill in some of the essential roles. We intend to hire two part-time volunteer coordinators to utilize our members for as much of our operations as possible. This will range from reception to newsletter production and will be essential to our operations.

> "You can come to BMUG with little or no computer knowledge, and, after some hard work on your part, leave with the knowledge, confidence, and contacts to land a job in the world of computers."

If we are going to succeed, it is going to be based on the efforts of the people who care about BMUG and want to contribute. We all need to remember: If not me, who? If not now, when?

The other benefit to relying more on volunteers is that it helps us get back to our mission of sharing information. Encouraging volunteers to take on important roles in the organization allows them access to knowledge, people and even places that they might not ordinarily have.

In the past, BMUG volunteers have used the knowledge and contacts they have gained during their volunteer efforts to find employment in just about every Mac related company you can name. We have former (not to mention current) volunteers at Apple, UMAX, Claris, Adobe, AladdinSystems, Microsoft, Be, *MacAddict* Magazine, *Macworld*, and *MacWEEK*, just to name a few.

In fact, this is one of the best things about BMUG: You can come to BMUG with little or no computer knowledge, and, after some hard work on your part, leave with the knowledge, confidence, and contacts to land a job in the world of computers. This not only helps you, but also helps BMUG and the computer community at large. BMUG's supporters at many companies have had numerous opportunities to help BMUG, but more than that, BMUG volunteers have also helped their companies improve their products by providing feedback from the large community of BMUG members.

And thus, the cycle repeats.

continued on page 207

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INTERNET • BY JOHN S. QUARTERMAN

Internet Economics 101

Why Is It Slow?

Every month or two a reporter asks me, "Why is the Internet so slow?"

Usually the next question is, "Why doesn't the Internet slow to a stop?"

To answer these questions, we have to discuss the economics of the Internet. I've alluded to this before, most recently in "Is the Internet a Commons?" But I haven't gone into it in detail in a column before.

Disclaimer: I am not an economist; I merely play one in this column. I'll be happy to entertain any refinements to what I say here.

Internet Money Flow

Where does Internet capacity come from, anyway?

Users pay Internet Service Providers (ISPs) so they can dial-up an ISP. Local ISPs pay wide area ISPs for long-haul service over leased lines. ISPs pay Network Access Points (NAPs) to exchange traffic.

Wide area ISPs don't generally pay each other to exchange traffic, but that's another subject that I don't want to get into right now. Call that one Internet Economics 102.

There are numerous variants on this simple scheme. An end-user may use some access to technology other than a modem, such as ISDN, ASDL, cable modem, or satellite. The end-user may be a person, a university, a company, or some other entity, large or small, rich or poor. ISPs may use all sorts of different technologies. But they all use the Internet Protocol (IP) or we wouldn't be talking about the Internet. And the money flows generally from the end-user upwards through smaller to larger ISPs. Each Internet Service Provider uses some of that money to pay for capacity.

There are also other sources of money. People and companies pay Web farms (which may or may not also be ISPs) to serve Web pages to the Internet. These Web farms, or Web hosting companies, or Web service providers, pay ISPs for Internet access, and that money feeds into the same channels as end-user ISP access money.

People pay for information and other products and services over the Internet. The companies that accept payment or provide delivery of such products and services pay ISPs for their own access. That's more money in the cash river.

> The Internet approximately doubles in size every year because of user demand. Growth at such a rate makes it almost impossible for an ISP to pay for necessary new capacity out of cash flow.

And there is a big complication that leads to another source of money. The Internet approximately doubles in size every year. This is because of user demand, which is as it should be. But growth at such a rate makes it almost impossible for an ISP to pay for necessary new capacity out of cash flow. We're talking as many new servers, routers, and as much more bandwidth every year as the ISP had total the previous year.

The extra money is coming from somewhere. Where? Investment. From the ISP owners, from banks, from venture capitalists, and, especially for the big ISPs, from the stock market. Everybody senses a booming industry and wants to buy into it. Not everybody is going to win in the end, but those who have deep enough pockets to keep pouring in cash for another 3–5 years, until at least the US Internet finally saturates the market, will then begin to reap their financial rewards. And in the meantime a lot of people are playing the stock market.

"Yes, but why is the Internet so slow?"

So how does tracing Internet money flows answer the question? Well, deployment of new capacity happens at about the same rate as money flows into the Internet from users and their traffic. Internet responsiveness being roughly capacity divided by traffic, people continue to see the Internet as slow.

It's Actually Getting Faster

Actually, the Internet is getting faster, and has been doing so consistently over the long term for years now. For graphical evidence of this, see our MIDS Internet Weather Report *www.mids.org/weather/*, especially the longterm graphs *www.mids.org/weather/pingstats/*.

Longtime Internet users don't really need these graphs to prove this point. Those of us who can remember the 56Kbps first version of NSFNET, or the T-1 (1.544Mbps) second version, or even the T-3 (45Mbps) third version, don't need any reminders that things are way faster now. I know, the NSFNET was partly funded by tax money. But the commercial ISPs that started in 1991 (AlterNet and PSINet were the first two) and exploded in 1994 follow the com-

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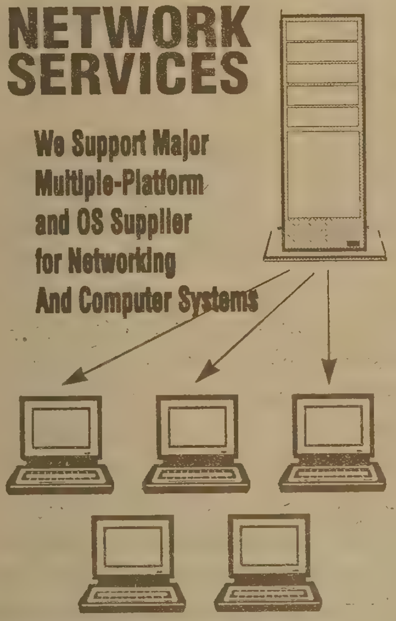

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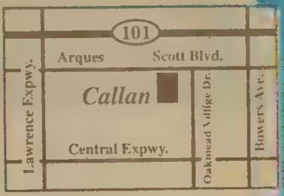

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mercial economic model I have outlined. The commercial ISPs started mostly as T-1 networks and quickly expanded through T-3 to even faster speeds.

A Historical Answer

The easiest way to answer the question about "Why doesn't the Internet slow to a stop?" is to look at history.

Around 1993, the World Wide Web (WWW or the Web) started to be deployed. Mosaic was released in April of that year, causing the first big surge of Web use.

Lots of people were worried. Transferring pictures over the Internet was unusual, and here was an Internet service that made pictures easy. It even promoted using pictures with every information exchange! Surely all this new traffic would overload the Internet. After all, a single GIF image could be bigger than one person's typical day's worth of electronic mail traffic.

The perceived problem got even worse in 1995, when Netscape became popular. It not only transferred images, it deliberately transferred four of them at a time! Surely this was user convenience at the cost of damaging the Internet infrastructure everyone depended on?

Well, that's not the way it worked out.

> More traffic paradoxically produced more bandwidth. That wasn't an accident—this is the way Internet economics works.

Instead, the Web boom attracted hordes of new users to the Internet. These users were, for the most part, willing to pay to see these fast pictures. A whole new industry of small ISPs sprang up to provide the access the users wanted to pay for. The small ISPs paid bigger ISPs for access. The bigger ISPs put in more bandwidth and links to handle the demand. The entire Internet grew, by every measure, even faster than its usual very fast rate.

Because of this boom, the year 1994 is often mentioned reverently by those who first discovered the Internet then, and especially by those who made their fortunes in the boom that started then. Maybe we should invent an Internet dating system, with pre-1994 and post-1994 eras that are radically different. (I find it amusing when someone says to me, "You were on the Internet way back before 1994?")

So more traffic paradoxically produced more bandwidth. And that wasn't an accident. This is the way Internet economics works.

An Intuitive Answer

Recently I got a more specific question: "Why does everyone see an Internet slowdown at about the hours of 3–5pm Eastern Time?"

I know it's considered tacky these days to bring up the tired old highway analogy, but sometimes it still is useful.

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Why do traffic jams happen at all? Because the taxpayers or toll road users are not willing to pay for enough capacity to completely prevent them. Even if they were willing to pay, deployment of the new capacity would take a while.

Why don't traffic jams happen all the time? Because the taxpayers wouldn't put up with that.

The Internet differs from highways in that its feedback loops are much faster. Also, the kinds of traffic the Internet carries, and the types of links it includes, vary much more quickly than for highways. But the basic economic feedback mechanism is the same.

Just as on the Internet, the highways capacity tends to be enough for average load, but not enough for peak load.

If the Internet had enough capacity to avoid slowdowns in the afternoon, lots of people would move to cheaper ISPs. That would lead to less capacity (or to capacity not keeping up as closely with traffic growth, which amounts to the same thing). Afternoon traffic slowdowns would result.

If the Internet had so little capacity that it always seemed slow, either people would pay more and we'd get more capacity, or people wouldn't sign up as quickly, and capacity deployment would catch up.

A Matter Of Perception

So why do people still *think* the Internet is slow? Partly due to expectations.

For one thing, people don't notice gradual improvement, but they do notice sudden changes for the worse. There are seasonal changes in Internet responsiveness. In January and September every year, the Internet does in fact get slower over the short term. Why? All those students going back to college.

For another thing, there is the Internet new user phenomenon. Remember, the Internet is doubling in size each year. That means every year half of the Internet's users weren't users last year. Where did they get their expectations, then? From television demonstrations of Internet use, or from canned single-machine demonstrations, both of which naturally use optimal conditions. Or from personal computer response times, which of course are wildly unrealistic as metrics for wide area network response times.

Or are they?

The Internet has been created out of nothing because people wanted it. There are physical limits to what can be done over computer networks, such as the speed of light. But most of the delays that people perceive in the Internet now are not up against those limits yet. People's perceptions will cause the Internet to improve to meet them. ■

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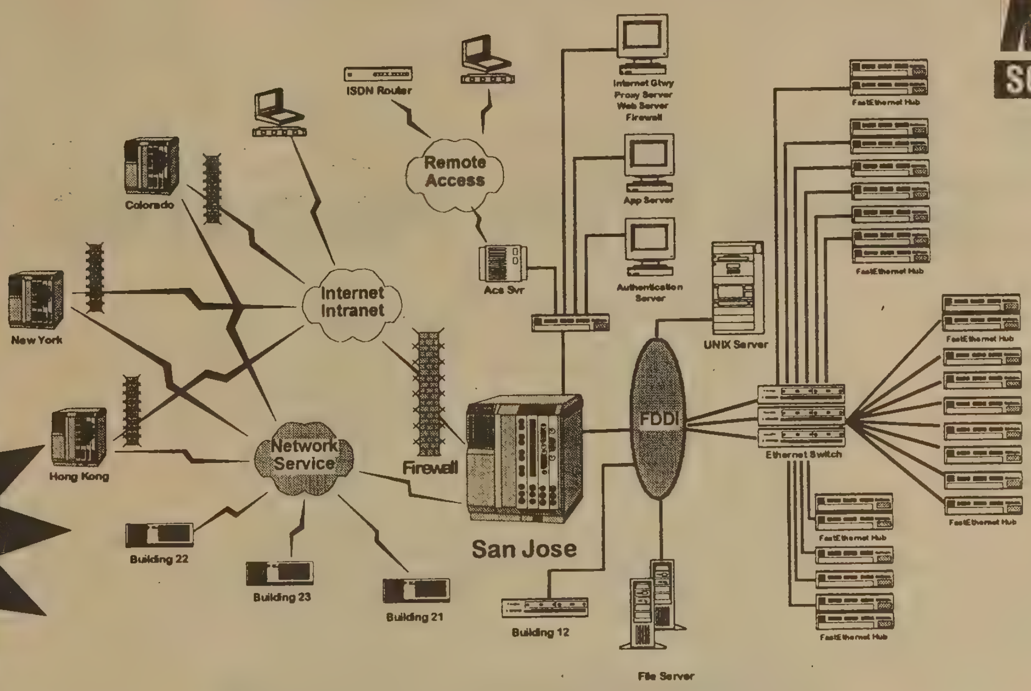

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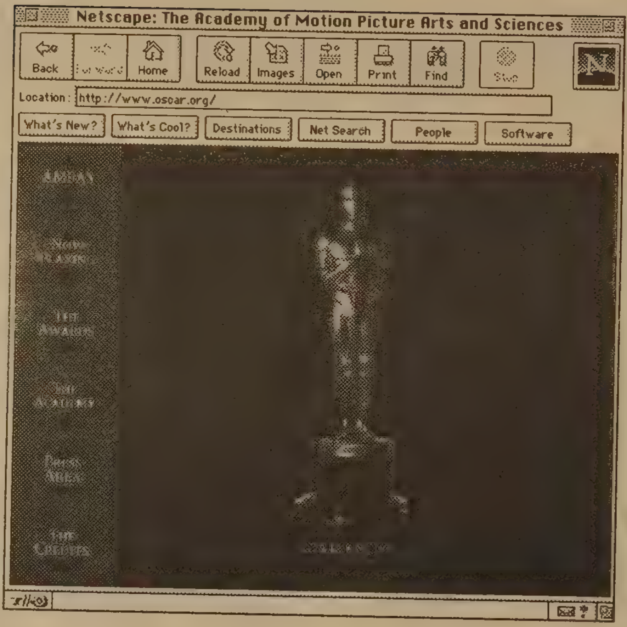
Good Film Hunting

Movies On The Web

March is a great time to take a look at Web sites covering film, movies, and cinema. Of course, the Academy Awards will be held March 23 and broadcast on ABC, so let's start there.



Netscape: The Academy of Motion Picture Arts and Sciences

Location: http://www.oscar.org/

Oscars Online

You can visit *www.oscar.org*, sponsored by the Academy of Motion Picture Arts and Science (AMPAS). This site is a relatively trade-oriented Web site for those in the biz.

A calendar section has deadlines for certain Academy events, including screenings of new documentary films and what exhibits are on display in the Academy's Gallery. Another link will take you to an alphabetized listing of all of the movies that qualified to be nominated for this year's awards. Click on *Titanic* and you'll see a listing of the credited actors.

There is a timetable for the Oscar balloting. For instance, final ballots must be mailed by March 3, while the final polls close March 17, less than a week before the awards show. This site, too, is the place where you try to get a press badge. They have so many requests this year, I doubt Murphy Brown could get a pass.

Some other neat features of this site include a history of the Oscar itself, first sculpted in 1928 by George Stanley, and a keyword searchable database of Oscar winners dating back to 1927. Here you can search by keyword or enter parameter searches for year and award categories. For instance the winner of the Academy Award for Best Cinematography (B&W) in 1952 was Robert Surtees for *The Bad and the Beautiful*. He had previously won an Oscar for cinematography for *King Solomon's Mines* (1950) and had been nominated for *Twenty Seconds Over Tokyo* (1944) and *Quo Vadis* (1951). Surtees again won the best cinematography award in 1959 for *Ben Hur* and went on to be nominated another 11 times for his work on *Oklahoma!, Mutiny on the Bounty, The Graduate, Doctor Dolittle, The Last Picture Show, Summer of '42, The Sting, The Hindenburg, A Star Is Born, The Turning Point*, and *Same Time Next Year*. What a career!

If you love movies you could spend hours here. But be warned, if you think you can use this site as a cheat for your next round of "7 Degrees of Kevin Bacon," forget it. He's not listed anywhere.

Moving on to Oscar night in particular, there is *www.oscar.com* . This is the site co-produced with ABC, broadcaster of the Oscar event. Where Oscar.Org is trade, and Oscar.Com is for the retail crowd like you and me.

Of course there will be the full nominee list and a timeline of Oscar history in the context of world events from 1927 to 1997. There will also be a photo gallery of Best-Movie poster art. For the helplessly hip, there will also be fashion reports and beauty dress trends—because everyone knows Oscar night is not only about the movies, but about sartorial self-expression, just like Halloween. There's even a section covering the 15 "best" costumes that people have worn to the Oscar ceremonies. A fashion game offers sketches, questions and comments about 25 costumes that you have to match up with the right movie.

Other games include a historical Oscar trivia game, and an identify the nominees challenge where you get progressively obvious clues until you can guess the actor in question. But most fun of all is the "Guess The Winners" contest, where you get to make your picks for winners in various categories.

Last year, the winner of the "You'll Never Log On In This Town Again" sweepstakes was Larry Petrovic of Illinois. Larry received a check for $1000. Not scale. But not shabby.

My favorite section, though, is the stuff about Oscar Nite in America with listings of Oscar parties all across America. And you might as well party in Fresno, 'cause you won't find a room in LA available on March 23rd.

But Wait...

Last I looked, Yahoo listed at least seven sites with some sort of contest theme. There may be more now, so check again—some of these are old sites from '96 or '97 and haven't been updated yet. For instance, last year, the *Chicago Tribune* held a Beat Siskel contest, daring readers to beat what turned out to be Siskel's uncannily correct picks for 1997 (*www.chicago.tribune.com/fun/flicks/oscar/siskel.htm*).

A new site that deserves your attention, Flick Picks (*www.flickpicks.com*), has a good concept and executes it well. Flick Picks gives you unbiased

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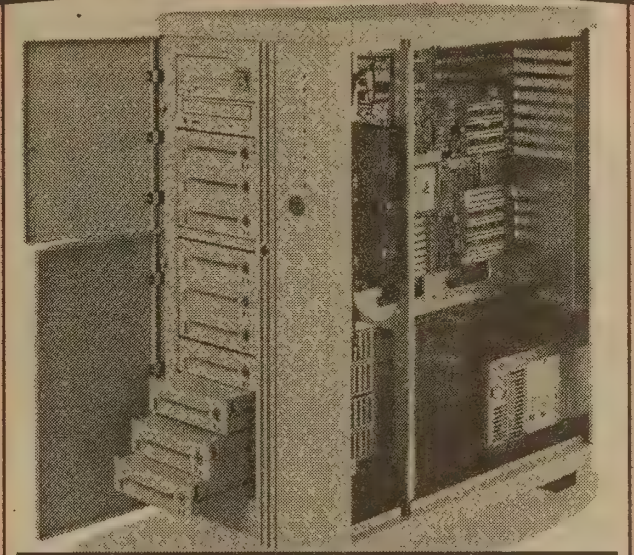

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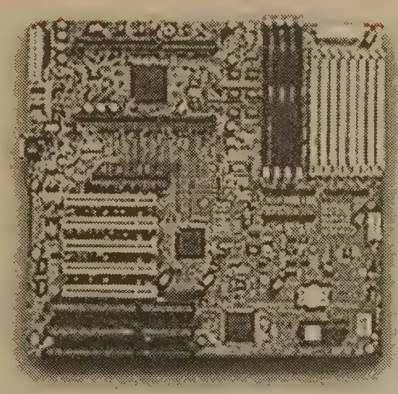

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information to help you decide for yourself whether it's worth shelling out hard-earned cash to see a movie. The ratings and comments you see here are from real people—moviegoers like yourself who paid to see the movies they rated. The site is not affiliated with any studio, distributor, crank reviewers or syndicated columnists. In fact, the deal here is that it lets ordinary people express their opinions about the films they see, rather than relying on some expert (or not) authority figure like...well, you know, those two guys in Chicago, for instance.

The major sections of the site include "Rate a Flick." Here, you register with a user name and password and then enter the rating area. A pull-down movie-listing menu lets you select the movie and then you can select a rating for it. I gave *Deconstructing Harry* two stars, *L.A. Confidential* three stars (is what Kim Basinger did called acting?), and *The Full Monty* four stars. Five stars should be reserved for only the best of best.

The "New This Week" section covers movies that are just opening, while the "Coming Attractions" section lists upcoming flicks, including information concerning the film's associated studios, director, principal actors, storyline and expected release date. In the "People's Choice" section you can review the updated ratings for various movies as rated by all registered Flick Pick browsers like you.

When I visited in January, before any of the nominations were out, *Titanic* was rated at 4.5 stars, followed by *Good Will Hunting, L.A. Confidential, Eve's Bayou, As Good as it Gets, The Full Monty*, and *The Postman*, all with four stars.

On the subject of four stars for the much-maligned *Postman*—David Nolan of Atlas Communications, the firm that developed the Flick Pick suite, observes: "This (*The Postman*) is clearly a movie that moviegoers like a lot better than do the professional movie critics." Refreshing. Especially as I recall Kevin Costner whining in *Waterworld*, "I didn't think you cared." Finally, a movie links section offers links to movie studios, Box Office online, weekly top moneymaking film listings, and links to more review sites.

> *Flick Picks gives you unbiased information to help you decide for yourself whether it's worth shelling out hard-earned cash to see a movie. The ratings and comments you see here are from real people—moviegoers like yourself who paid to see the movies they rated.*

Now Mr. Cranky is another story. Point your browser to *www.inter net-plaza.net/zone/mrcranky/* to see some of the most crotchety movie reviews you'll ever want to read. There are no stars on the Mr. Cranky Rates the Movies Web site. Only bombs. Mr. Cranky is the anti-critic, as

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in anti-hero. No movie is a good movie, according to Mr. Cranky, so the reviews are focused on telling readers why each particular movie sucks.

A one-bomb rating means a movie is "almost tolerable." Two bombs mean the flick is "consistently annoying." Three bombs ensure the viewer will "require therapy after viewing." "As good as a poke in the eye with a sharp stick," is the four-bomb rating. Finally, the sizzling sticks of dynamite mean the movie was, "so gawdawful that it ruptured the very fabric of space and time with the sheer overpowering force of its mediocrity. (Special instances only)."

Aside from Mr. Cranky's rantings...er, I mean ratings, there is a public forum area where you can rant yourself silly. Mr. Cranky also offers a mailing list for subscribers who want to be the first to know how bad *Lost In Space* (to be released April 3) really is.

But the real show is Mr. Cranky's terse reviews. Here's the third of four paragraphs that make up Mr.Cranky's one-bomb rating of *Good Will Hunting*:

"So poor Matt Damon and poor Ben Affleck wrote *Good Will Hunting*, about a poor Boston southie who's actually a mathematics genius, but needs some attention because he's been so wounded and hurt during his life. Damon probably got the idea after taking a wrong turn in his Beemer, winding up in a bad neighborhood, and thinking, 'Wow, what if one of these losers were as smart as me?' and 'I'd better get the hell out of here before I'm gang-raped.' *Good Will Hunting* is Matt Damon's version of slumming it: Trying to identify with the common man, and in the end achieving only a clumsy, insulting condescension."

There are no stars on the Mr. Cranky Rates the Movies Web site. Only bombs. Mr. Cranky is the anti-critic, as in anti-hero. No movie is a good movie, according to Mr. Cranky, so the reviews are focused on telling readers why each particular movie sucks.

On the opposite end of the spectrum, here is a comment from Mr. Cranky for his four-bomb review of *Home Alone 3*: "However, even more insidious is the way in which movies like this one are creating a cinematic world where debate about quality is virtually impossible. Discerning free will is moot if we all prove ourselves automatons who'll simply do anything we're told. If the side of the package says "eat s***," we'll eat s***. If the television says "kill your parents," we'll kill our parents. And if Hollywood says 'see *Home Alone 3*' because that's all they're going to give us, then we're going to go see *Home Alone 3*."

Words to live by? Maybe. But I sure hope Mr. Cranky doesn't ever review what passes for computer journalism. ■

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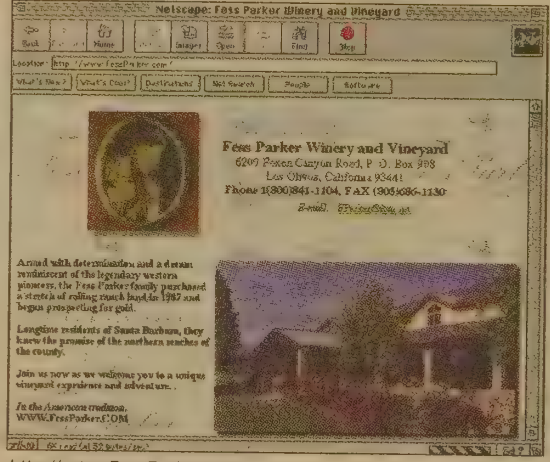

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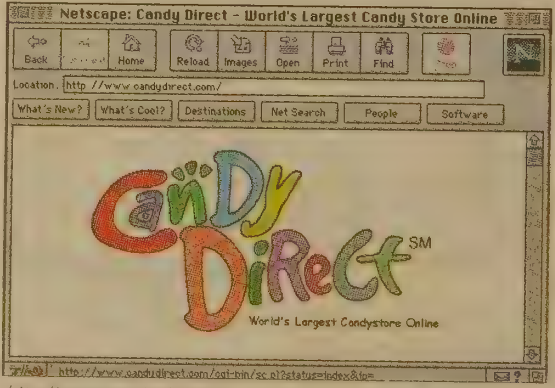
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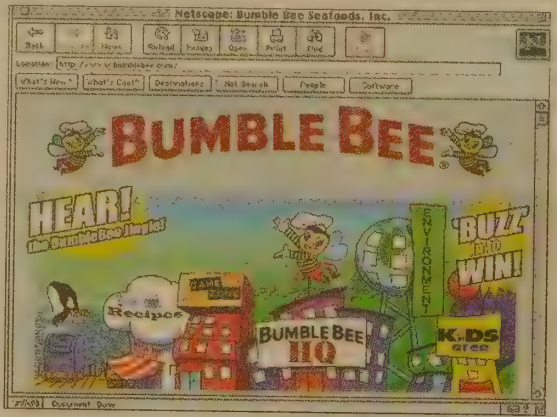

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- Sound Blaster 16
- 60-Watt Stereo Speakers
- 2 S, 1P Ports
- Medium Tower Case w/230W PS
- Enhanced 104 Keyboard

Pro-200	**$2129**
Pentium®II 233	**$2029**
Pentium®II 266	**$2129**
Pentium®II 300	**$2429**
Pentium®II 333	**$2629**

P5 MULTIMEDIA SYSTEMS

- P-5 Motherboard w/512K Cache
- Pentium® Processor Based Systems
- PCI and ISA Bus
- 32MB EDO RAM
- 2.6GB Hard Drive
- 1.44 Floppy Drive
- 14" NI SVGA Monitor .28
- Diamond Edge 3D PCI Video w/2MB w/Sound
- 2S, 1P Ports
- Mini-Tower or Desktop Case w/230W PS
- Enhanced 104 Keyboard
- 12X CD-ROM
- 60-Watt Stereo Speakers

P5-90	$769
P5-120	$779
P5-133	$789
P5-150	$809
P5-166MMX	$829
P5-200/MMX	$859/869
P5-233MMX	$989

RACK-MOUNT PC

Passive Backplane

14 Slots ISA Only	$89
14 Slots ISA/PCI	129

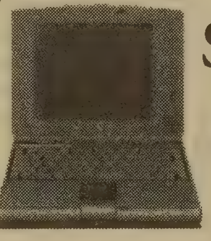
CPU Card

486DX4-100/DX2-66

All-in-one	$229
P5 75-200MHz PCI/ISA	349
Pentium® Pro 200 w/VGA	790
Pentium® II 233-300MHz PCI/ISA	990
19" Rack-Mount PC Chassis	$239
19" Rack-Mount Monitor Enclosure for 14" Monitor	$27
10.4" Color TFT LCD Monitor	$1799
10.4" Color TFT LCD Monitor w/Touch Panel	$2359

Notebooks

- Pentium® 166MMX-233MHz
- 12.1" Dual Scan Display
- 2MB VGA Video RAM
- 2.1GB Hard Drive
- 20X CD-ROM
- 32MB EDO RAM
- 1.44 Floppy Drive
- 16-Bit Sound Built In
- AC Adaptor • Battery • Case



$1699

for 12.1" Active	Add $400
for 13.1" Active	Add $800
for 14.4" Active	Add $1200

Notebook Accessories

RAM

8MB	$65
16MB	$95
Docking Station	$299

Hard Drive

2.1GB	$249
3.1GB 2.5"	369

Fax Modem

14.4K	$79
33.6K/56K	$99/189
EtherNet Card	$129
Earphone w/Microphone	$25

IBM/TOSHIBA/COMPAQ RAM/HARD DISK AVAILABLE!

CD-ROMS

6x4 CD Writer SCSI	$469
Blank CD (740MB)	1.99
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4X SCSI Toshiba	49
12X/24X/32X IDE	59/79/89

MULTIMEDIA

Sound Blaster 16 PnP	$49
Sound Blaster AWE 64 PnP	79
16-Bit Sound Card	25

SPEAKERS

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CASE & POWER SUPPLY

Mini Tower Case w/230 Watts	$30
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Full ATX w/250 Watts	99
200/230/250/300 Watts Power Supply	$20/23/28/59
HD Pull Out Removable Box	22
250/300 Watt ATX Power Supply UL	45/59
Ext HD/CD-ROM Case IDE/SCSI	75
450 VA UPS (Uninterupted Powet)	89

MODEMS

14.4K Int/Ext	$29/39
33.6K w/ Voice	49
33.6K/56K Ext US Robotics	99/199
33.6/56K Int USR w/ Voice	95/135
56K Flex	79

TAPE DRIVES

Colorado T4000 4GB	$389
Iomega Ditto 3.2GB	$159

MOTHERBOARD & CPU

386DX33/40	$20
486SX/DX25/33	50
486DX4-100 M/B ISA/POI/VLB & CPU	85
P5-90/120 512K	139/149
P5-133/150 512K	159/179
P5-166MMX 512K	199
P5-200 512K	229
P5-200MMX 512K	239
P5-233MMX 512K	359
P6-PRO-200 VENUS 256K	599
Pentium® II-233 Intel & Atlanta	499
Pentium® II-266 Intel & Atlanta	599
Pentium® II-300 Intel & Atlanta	899
Pentium® II-333 Intel & Atlanta	1099
AMD-K6-166 MMX	199
AMD-K6-200 MMX	249
AMD-K6-233 MMX	299
Cyrix P-180 w/VGA & Sound	169

HARD DRIVES

1.2/2.1GB IDE	$129/159
2.5/3.2GB IDE	169/189
4.3GB/6.4GB IDE	229/289
8.4GB IDE	369
2.1/4.3GB SCSI	229/399
6.4/9.0GB SCSI	499/769
100MB Zip DR (EPP/SCSI)	149/149
100MB Zip DR (IDE)	89
100MB Cartridge	13
1.0GB Jaz Drive	319
1.0GB Jaz Cartridge	119

FLOPPY DRIVES

Teac 1.44	$25
Teac 1.2 New/Used	39/9

MONITORS

14" Non-Int	$139
14" Non-Int (SOCOS)	169
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15" NEC XV Plus	299
17" Non-Int SVGA	359
17" NEC M700 .25 w/Spks	599
21" Non-Int SVGA 1600x1280 .28	999
Sony/Viewsonic	CALL

KEYBOARDS

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104 Keytronic/PS2	22
101 Maxswitch	25

VGA CARDS

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1MB VGA VLB/PCI.	19/30
Diamond VRAM 2/4MB	135/225
Diamond 3D 2/4MB WRAM	69/89
Matrox Millennium 2/4MB	165/225
Matrox Millennium 8MB	299
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MISC.

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IDE/IO VLB	15
B/W Scanner	49
Color Scanner (Hand Held)	99
Flat-Bed Scanner (EPP/SCSI)	169
9-Pin Printer Alton 2000	69
HP670C	229

NETWORKING PRODUCTS

Ethernet 16-Bit Combo Card	$28
3Com 3C509 Combo	59
3Com 3C905TX Combo	69
Ethernet 10BT Hub 8/16 Ports	99/199
3COM 8/12/24 Ports	194/339/1099
Novell Netware 4.1 10/25 Users	699/899
10' Cable (TP)	59

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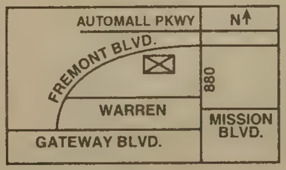

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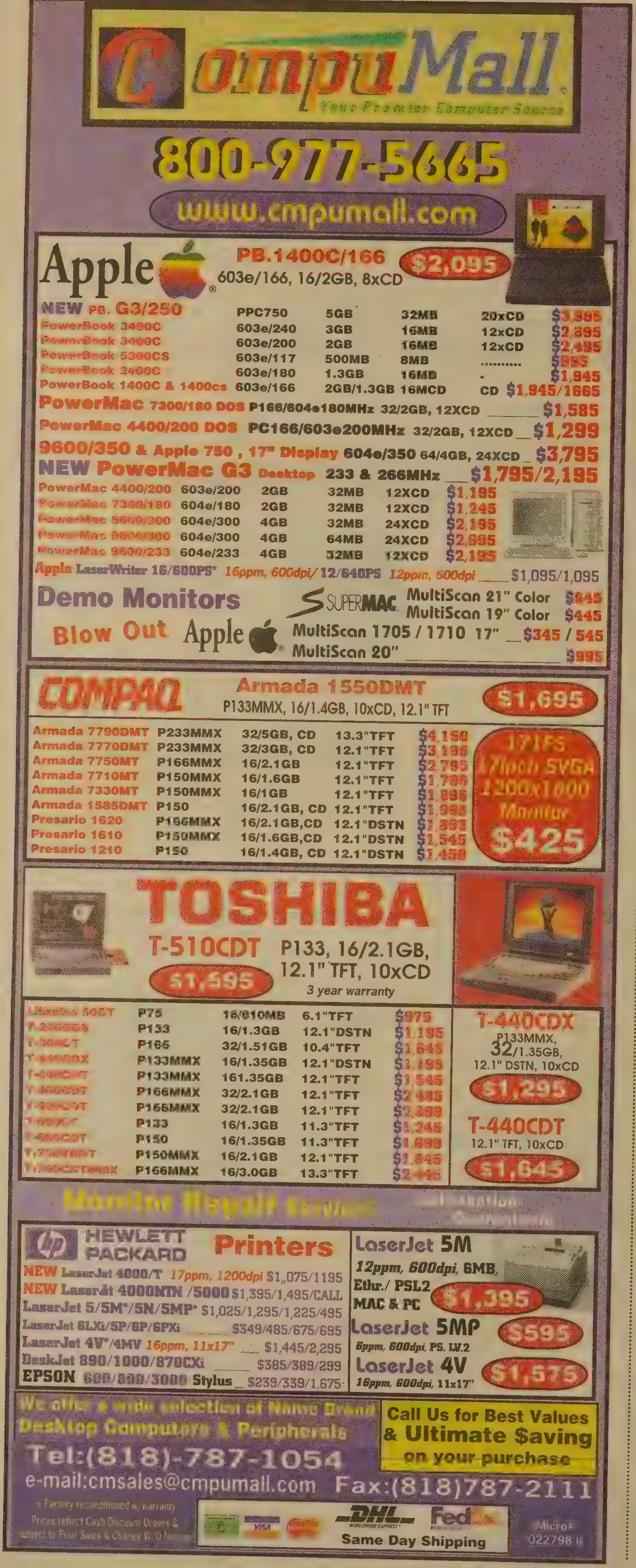

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PowerBook 5300CS	603e/117	500MB	8MB	....	$995
PowerBook 2400C	603e/180	1.3GB	16MB	-	$1,945
PowerBook 1400C & 1400cs	603e/166	2GB/1.3GB	16MCD	CD	$1,945/1665

PowerMac 7300/180 DOS P166/604e180MHz 32/2GB, 12XCD ______ $1,585
PowerMac 4400/200 DOS PC166/603e200MHz 32/2GB, 12XCD __ $1,299
9600/350 & Apple 750 , 17" Display 604e/350 64/4GB, 24XCD _ $3,795
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PowerMac 4400/200	603e/200	2GB	32MB	12XCD	$1,195
PowerMac 7300/180	604e/180	2GB	32MB	12XCD	$1,245
PowerMac 9600/300	604e/300	4GB	32MB	24XCD	$2,195
PowerMac 9600/300	604e/300	4GB	64MB	24XCD	$2,695
PowerMac 9600/233	604e/233	4GB	32MB	12XCD	$2,195

Apple LaserWriter 16/600PS* 16ppm, 600dpi/ 12/640PS 12ppm, 600dpi ____ $1,095/1,095

Demo Monitors
SUPERMAC MultiScan 21" Color $645
MultiScan 19" Color $445
Blow Out Apple MultiScan 1705 / 1710 17" __ $345 / 545
MultiScan 20" ______________ $995

COMPAQ Armada 1550DMT $1,695
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Armada 7790DMT	P233MMX	32/5GB, CD	13.3"TFT	$4,150
Armada 7770DMT	P233MMX	32/3GB, CD	12.1"TFT	$3,195
Armada 7750MT	P166MMX	16/2.1GB	12.1"TFT	$2,795
Armada 7710MT	P150MMX	16/1.6GB	12.1"TFT	$1,795
Armada 7330MT	P150MMX	16/1GB	12.1"TFT	$1,895
Armada 1585DMT	P150	16/2.1GB, CD	12.1"TFT	$1,995
Presario 1620	P166MMX	16/2.1GB,CD	12.1"DSTN	$1,893
Presario 1610	P150MMX	16/1.6GB,CD	12.1"DSTN	$1,545
Presario 1210	P150	16/1.4GB, CD	12.1"DSTN	$1,450

17 FS 17inch SVGA 1280x1000 Monitor $425

TOSHIBA
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Libretto 50CT	P75	16/810MB	6.1"TFT	$975
[illegible]	P133	16/1.3GB	12.1"DSTN	$1,195
[illegible]	P166	32/1.51GB	10.4"TFT	$1,645
[illegible]	P133MMX	16/1.35GB	12.1"DSTN	$1,195
[illegible]	P133MMX	161.35GB	12.1"TFT	$1,545
[illegible]	P166MMX	32/2.1GB	12.1"TFT	$2,495
[illegible]	P166MMX	32/2.1GB	12.1"TFT	$2,399
[illegible]	P133	16/1.3GB	11.3"TFT	$1,245
[illegible]	P150	16/1.35GB	11.3"TFT	$1,695
[illegible]	P150MMX	16/2.1GB	12.1"TFT	$1,845
[illegible]	P166MMX	16/3.0GB	13.3"TFT	$2,445

T-440CDX P133MMX, 32/1.35GB, 12.1" DSTN, 10xCD $1,295
T-440CDT 12.1" TFT, 10xCD $1,645

Monitor Repair Service [illegible]

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NEW LaserJet 4000NTN /5000 $1,395/1,495/CALL
LaserJet 5/5M*/5N/5MP* $1,025/1,295/1,225/495
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LaserJet 4V*/4MV 16ppm, 11x17" ___ $1,445/2,295
DeskJet 890/1000/870CXi ______ $385/389/299
EPSON 600/800/3000 Stylus _ $239/339/1,675

LaserJet 5M 12ppm, 600dpi, 6MB, Ethr./ PSL2 MAC & PC $1,395
LaserJet 5MP 6ppm, 600dpi, PS. LV.2 $595
LaserJet 4V 16ppm, 600dpi, 11x17" $1,575

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Dr. Leonard H. Goldsmith *http://www.drgoldsmith.com* Dentist in General Practice. [Exp. #178.]

Earth's Aether: The Republic Of Earth *http://www.troeaaron.com/* Research, develop, and distribute products and services to help you earn lasting youth, health, wealth, and happiness. [Exp. #176.]

eBay—Online Auctions *http://www.ebay.com* eBay is the leading person-to-person online auction community on the Web. Thousands of antiques, collectibles, toys, coins, computers and more. [Exp. #176.]

Extraordinary Knives *http://www.seagren.com* Very high-end custom, handmade and factory knives. [Exp. #178.]

EZ2C Targets *http://www.ez2ctargets.com* You'll know when you hit the mark with Ez2c targets. [Exp. #178.]

Ferguson Investigation Agency *http://www.ferguson-investigation.com/yourpage.html* Private investigation agency. [Exp. #178.]

Fess Parker Winery & Vineyard *http://www.FessParker.com* Retail and wholesale wines, tasting room gift shop, tours, and special events. [Exp. #178.]

Filofax Specialist *http://www.faxcessory.co.uk* World-wide delivery of filofax wallets, binders and inserts. [Exp. #176.]

Flowers International *http://www.arach.net.au/flowersinternational* An Australian flower service offering fast mail-order fresh cut flowers to the UK and Europe. [Exp. #176.]

Free Internet Business *http://members.spree.com/shop&bepaid* Sign with Spree.com and start earning money today. [Exp. #176.]

GDMS *http://pw2.netcom.com/~shivatec/GDMS.html* Analytical service: glow discharge mass spectrometry. [Exp. #176.]

Granlund Tools *http://www.granlund.se* Manufacturer of HSS and carbide rotating cutting tools. [Exp. #178.]

GreenSearch *http://www.greensearch.com* Specialists in providing managers for the Green industry. [Exp. #178.]

Greg Anderson Log Homes *http://uslink.net/~loghomes* Handcrafted log homes using large diameter logs 15" to 20" bases [Exp. #178.]

Hackers Home Page *http://www.hackershomepage.com* They have over 300 plans, kits, and assembled products for the serious hacker, phreak, cracker, spy, and electronics enthusiast. International sales and inquiries welcomed. Don't miss this one! [Exp. #176.]

Haddad Brothers *http://www.haddadbros.com/* Children's ware and christening apparel. [Exp. #178.]

Harley-Davidson/All-American Online Motorcycle Swap Meet *http://www.mcswap.com* Classified ads for bikes and parts, an accessories manufacturers "Harley Mall," message board, chat, event listings, and even biker personals. [Exp. #176.]

Hats & Bags Manufacturer *http://www.wangtai.com* Reliable manufacturer. [Exp. #176.]

Herbalife *http://www.nodiet.com* health, fitness, weight loss, international income opportunity. [Exp. #178.]

Hobby Builders Supply *http://www.miniatures.com* Over 3,000 dollhouse and miniature items at discount prices. [Exp. #176.]

Holt Educational Outlet *http://www.holtoutlet.com* Educational toys and teachers supplies at 10% to 50% off. [Exp. #176.]

Home Exchange *http://www.HomeExchange.com* Thanks to the Internet and HomeExchange.com, anyone planning a trip can browse a convenient current list of homes in countries all over the world. [Exp. #176.]

Ignition Interlock Group Home Page *http://www.ignitioninterlock.com* A national ignition interlock service provider. [Exp. #176.]

Internet Merchant Services *http://www.intermerchser.com* Credit card merchant accounts for international customers. [Exp. #178.]

IVS, Inc. *http://www.ivsincorporated.com* IVS specializes in repair and support of industrial automation equipment, as well as repairs for computers and peripherals. [Exp. #176.]

Jewelry Mall *http://www.jewelrymall.com* Everything about jewelry: stores, gem and jewelry show dates, birthstones, wholesale, and more. [Exp. #176.]

Kapp Surgical Instrument, Inc. *http://www.kappsurgical.com* Manufacturer of custom designed surgical instruments. [Exp. #178.]

Katherine Ray's Web Site *http://www.katherineray.com* Home page of Katherine Ray products. [Exp. #176.]

Kelly Petersen, Commercial Photographer *http://www.photographer.cc* Photography for advertising, marketing, and industry. [Exp. #178.]

Knilans & Associates *http://toyreps.com* The educational toy specialists, [Exp. #176.]

Le Fay Herbal Concoctions *http://www.lefayherbs.com* Luxurious potpourri blends, rich fragrance oils and soothing, luxurious herbal baths—perfect as a gift for any occasion. [Exp. #176.]

Lobster Tools *http://www.riveter.com* Lobster Tools offer the most comprehensive line of blind rivet and rivet-nut installation tools available anywhere. [Exp. #178.]

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- AMD® Processor
- Motherboard, Triton Chipset
- 512K Pipeline Burst Cache
- 16MB EDO RAM
- 2.5GB Hard Drive
- 1.44MB Floppy Drive
- 24X CD-ROM Drive
- Sound Blaster 16 Compatible Card
- Amplified Speakers
- Impression 4VX Monitor
- SVGA w/1MB Card
- 2S, 1P, 1G Ports
- Built-in IDE, I/O Controller
- Mini Tower Case w/PS
- 104-Key Keyboard
- MS Compatible Mouse
- Windows 95

K6-200	**$919**
K6-233	**$959**

PERFORMANCE SYSTEMS

- Intel Pentium® Processor
- P-5 Motherboard, Triton Chipset
- 512K Pipeline Burst Cache
- 32MB EDO RAM
- 3GB Hard Drive
- 32X CD-ROM Drive
- 1.44MB Floppy Drive
- ADI 4P Monitor
- Diamond Stealth 3D w/4MB EDO
- Sound Blaster 64
- Microsoft Compatible Mouse
- Amplified Speakers
- Mini Tower Case w/PS
- Maxi Nova Keyboard
- Windows 95

P-166MMX	**$1,149**
P-200MMX	**$1,179**
P-233MMX	**$1,349**

SUPER SYSTEMS

- Intel Atlanta Motherboard
- 32MB SDRAM
- Western Digital 4.3GB Hard Drive
- Matrox Millennium II 4MB WRAM AGP
- Teac 1.44 Floppy Drive
- Toshiba 32X CD-ROM Drive
- Integrated Yamaha Sound Card
- ADI 5P 16" Viewable Monitor
- MS Natural Keyboard
- ATX Medium Tower Case
- Multimedia Speakers 160W
- Windows 95
- Microsoft IntelliMouse
- US Robotics Sportster 56K Fax/Modem

Pentium® II-233MHz	**$1,899**
Pentium® II-266MHz	**$1,999**
Pentium® II-300MHz	**$2,179**
Pentium® II-333MHz	**$2,409**

MULTIMEDIA

NEC 15X SCSI CD-ROM Drive	$109
Mitsumi 16X CD-ROM Drive	65
Toshiba 24X CD-ROM Drive	78
Sound Blaster 16	50
Sound Blaster 64	85
Stereo Speakers	from 10
Miro Video Capture	349
Connectix Color Quickcam	139

NOTEBOOKS

NEC	CALL
Toshiba	CALL
AST	CALL

CASES

Mini Tower Case w/PS	$55
Baby AT Case w/PS	65
Mid-Tower w/PS	65
Full-Tower w/PS	85
ATX Mid-Tower Case	90
ATX Full-Tower	119

VIDEO CARDS

MGP Card	$15
Stealth 64, 3D EDO 4MB	89
Stealth 4MB VRAM 3D	169
Matrox Mystique 2MB SG RAM	129
Matrox Millennium 4/8MB	189/269

KEYBOARDS

Maxi Nova	$25
Keytronic	30
Focus 2001	35
MS Natural Keyboard	75
Cirque Glidepoint Keyboard	89
Keytronic Wireless Keyboard	89

HARD DRIVES

2.5GB IDE	$165
3GB IDE	189
4.3GB IDE	209
6.4GB IDE	285
2GB SCSI	239
4GB SCSI	309

MONITORS

SVGA NI 1024x768 .28dp 14"	$189
ADI 4P 1280x1024 .28dp 13.8" Viewable	249
ADI 5P 28dp16"Viewable	429
Sony 100ES	379
Sony 200ES	635
NEC A700	570
ADI 6P	1199

MICE

3-Button Mouse	$10
Logitech 2-Button	22
MS Mouse/Bus	49/79
Logitech Mouseman/Bus	39/69
Logitech Marble Trackman	85
Kensington Expert Mouse	89
Alps GlidePoint Mouse	69

CONTROLLERS

IDE Controller 2FD/2HD	$15
IDE I/O Controller High Speed	25
Promise 2300 Plus	59
Adaptec 2940 PCI SCSI	179
Adaptec 2940U Wide SCSI	219

MOTHERBOARDS

Pentium® 166MMX w/CPU	$219
Pentium® 200MMX w/CPU	249
Pentium® 233MMX w/CPU	319
Pentium® II-233MHz w/CPU	479
Pentium® II-266MHz w/CPU	639
Pentium® II-300MHz w/CPU	809
Pentium® II-333MHz w/CPU	1049

PRINTERS

Hewlett Packard

DeskJet 870CXI	$299
DeskJet 890CXI	$459
DeskJet 1000CXI	$499
LaserJet 6LXi	399
LaserJet 6PXi	799
ScanJet 5P	299
LaserJet 4000	1,169

MODEMS

US Robotics 33.6 Int./Ext.	$99/129
US Robotics 56.6 Int./Ext.	159/199
US Robotics 56K PCMCIA	249

TAPE BACKUPS

Colorado 4000S Int.	$399
Colorado 3.2GB Int.	179
Colorado 5GB Int./Ext.	219/269
Iomega Zip Drive IDE Int.	125
Iomega Zip Drive SCSI Ext.	169
Iomega 1GB Jaz Drive Ext.	399

NETWORKING

8-Port Hub	$70
16-Port Hub	199
3COM 8-Port Hub	139
3COM 3C509 T/P/Combo	59/89
3COM 3C509 PCMCIA 10BT/Combo.	159/189
3COM 3C900TP/3C900C.	69/89
3COM 3C905.	79
SMC Elite Combo	75

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Loie *http://www.loie.com* Unique needlepoint designs. pillows, carpets, wall hangings, coasters, tree skirts, and stockings [Exp. #178.]

Los Amigos Tortilla Mfg., Inc. *http://www.losamigos.com* Manufacturers of auth-entic corn and flour tortillas, tortilla chips, and cheese and salsa. [Exp. #177.]

Louisiana-Pacific Corp. *http://www.lpcorp.com* Headquartered in Portland, OR, a major manufacturer of building materials, industrial wood products, and pulp. [Exp. #176.]

LSA Anodic Technologies, Inc. *http://www.lsatech.com* UHV high tech metal finisher and anodizer. [Exp. #178.]

Lucy Mac Children's Store *http://www.lucymaxchildrensstore.com/* Offers the original Baby Bunting carrier for newborns. Baby shower gifts, children's clothes, and more. [Exp. #176.]

Madely's Collectables & Things *http://members.aol.com/madelys/index.htm* Fine porcelain dolls, resin, poly resin and procelain figurines, and gifts. [Exp. #176.]

Marbelite International Corp. *http://www.marbelite.com* Manufacturers of decorative sprayed and troweled polymer modified cement coatings. [Exp. #178.]

Marine Equipment *http://www.tecomar.es* Spare parts for Spanish-built ships. Marine equipment. [Exp. #178.]

Matheny Enterprises *http://www.ment.com* Free investment charting and analysis software, imported Asian products, links, and more. [Exp. #177.]

Micro-Matics Corp. Home Page *http://www.micro-matics.com* [Exp. #176.]

Millers Rentals & Sales *http://www.millers-rentals.com* Complete party rental service—tents, tables, chairs, staging, fine china, linen, weddings, corporate events. [Exp. #176.]

Mindsource, Inc. *http://mindsource.net* Expert witnesses, expert database, and expert network. [Exp. #178.]

Minerals Management Service *http://www.gomr.mms.gov/* Manage the mineral resources of the outer continental shelf/Gulf of Mexico region. [Exp. #178.]

Morning Glory Floral Design *http://members.aol.com/mnglory* Features wedding flower arrangement, wedding planning, and general floral design information. [Exp. #176.]

Mr. Fruit, Inc. *http://www.mrfruit.com* The finest Flordia gift fruit from the Indian River region. [Exp. #176.]

N-Ternet Business Center *http://www.conentusa.com/n-ternet/* Free classifieds and business opportunities. [Exp. #176.]

Net Surf Wearz *http://www.netsurfwearz.com* Clothing. [Exp. #178.]

Norman Equipment Co. *http://www.normanequipment.com* Leader in fluid power sales and service in the Midwest. [Exp. #178.]

Nutritionw World's Internet Super Store *http://www.nutritionworld.com* Your one-stop shop for name brand vitamins, minerals, and herbs. [Exp. #178.]

Ocular Inc. *http://www.ocularusa.com* Leading manufacturer of standard and custom-made LCD/LCD modules, TN, STN, FSTN, LCD backlight modules, custom LCD modules, COB modules, chip-on-board, heat seal connectors, and LCD shutters. [Exp. #176.]

Office Depot Online *http://www.officedepot.com/* [Exp. #178.]

Owner *http://www.elizabethsetc.com* Wedding business. [Exp. #176.]

P & T Partners *http://www.flash.net/~pntlbaer* Custom handguns and Colt 45. [Exp. #178.]

Personal And Executive Coaching *http://www.paxconsulting.com/coach.html* Coach Peter Fahrenkamp has coached people successfully since 1992 in the US and Europe. [Exp. #176.]

Peter Jason Riley, CPA *http://www.pjrcpa.com* Tax and accounting service. [Exp. #178.]

Pluto *http://www.plutonet.com* Gay and lesbian Internet community matchmaking. [Exp. #178.]

Precision Private Security *http://www.cyberspacelaws.com/precision.htm* A Security Guard Services company in L.A. with great rates. Member of the BBB. [Exp. #176.]

Prevent A Ding *http://www.readysetnet.com/prevent.html* Helping you to protect your vehicle from common parking lot dings while advertising your business. [Exp. #176.]

Printing *http://www.unigraphic.com* Commercial Web and sheet fed printer. [Exp. #176.]

ProMotion Publishing On-Line *http://promotionpub.com* Book publisher. [Exp. #178.]

Provident Companies *http://www.providentcompanies.com* Specializing in disability insurance, employee benefits, and personal Insurance. [Exp. #176.]

Quality Consulting Services (QCS) *http://www.quality.com* [Exp. #178.]

Quick Relief Arthritis Creme *http://www.health.com* Breakthrough arthtitis pain relief remedy. [Exp. #178.]

Rent-An-Inventor *http://www.rent-an-inventor.com* Helping companies create products from concept to completion. [Exp. #176.]

Robert Scott—Cognigen Agency *http://ld.net/?phonesal* Looking for competitive long-distance rates and interntional calling plans? Also offering prepaid phone cards. [Exp. #176.]

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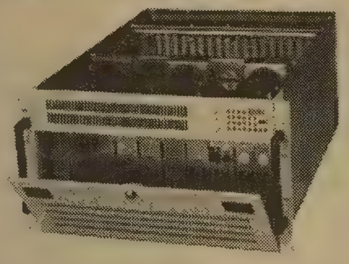

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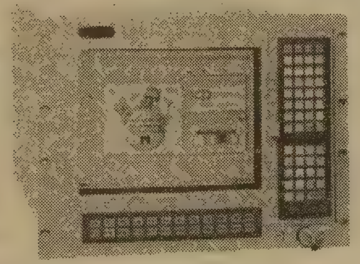

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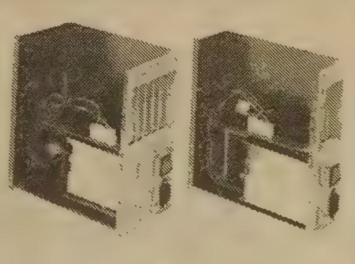
  Type 3: 4-PCI, 1-CPU (PICMG)



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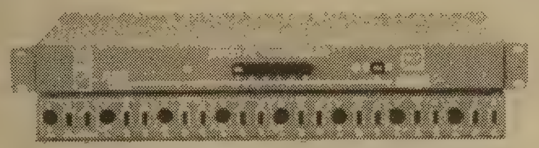

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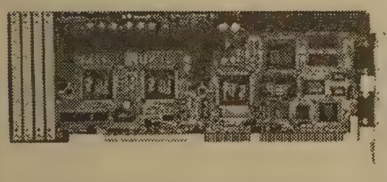

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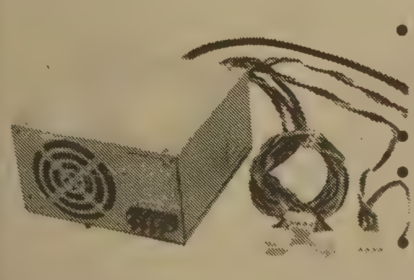

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ScreenCo *http://www.screenco-online.com* ScreenCo brokers advertising specialty products including a large variety of screen-printed and embroidered apparel items as well as a variety of non-wearables. [Exp. #176.]

Search4People *http://members.aol.com/jlxent/search4people.htm* Person locating services using millions of consumer reporting agency files, driver license files and public records to find and locate lost family members or friends are available. [Exp. #176.]

ShellStations.com *http://www.shellstations.com* Automotive repair and c-store with contests and coupons savings. [Exp. #178.]

ShowBase, Inc. *http://www.showbase.com* Home page of ShowBase, Inc. [Exp. #178.]

ShrinkTank *http://www.shrinktank.com/* Psychology program and text files, links to testing sites, other psychology software sites. [Exp. #176.]

The Snowboard Shop *http://www.thesnowboardshop.com* The online source for discount snowboard gear. [Exp. #176.]

Solum World Papers *http://www.solum.com* Hand-made and hand-printed papers, gift boxes, stationary, and ethnic cards. [Exp. #178.]

Solutions In Cold Rolled Sections *http://www.sadef.be* Service center for sections and welded shapes. [Exp. #176.]

SoundStone.com *http://www.soundstone.com/* Offering a vast catalog of CD titles, discounted at up to 20% off standard retail prices. [Exp. #176.]

Stock Photography Library *http://rainbowimages.com* A special collection of images for the new millennium. [Exp. #178.]

Stonewall Gourmet Coffees, Teas, Foods, Gifts *http://www.stonewallinc.com* Visit our store in West Hollywood, online ordering, fast delivery, and great service. [Exp. #178.]

TeamHayden.com *http://www.hayden.ca* The largest single source of central vacuum information. Continually adding new information and updates, including how to make your home healthier and reduce childhood asthma. [Exp. #176.]

TECHMATICS *http://www.techmatics.com* Information technology and engineering company. [Exp. #178.]

Terri's Special T's *http://www.brookesline.com* A line of baby clothes and accessories. [Exp. #176.]

TicketWeb, The Online Ticketing Alternative *http://www.ticketweb.com* TicketWeb uses the Internet to sell low-cost tickets for events across the country. [Exp. #176.]

Tree Co. *http://www.treeco.com* Earth-friendly products for home and office including cleaning, recycled paper, gifts, and more. [Exp. #177.]

Tropical Shipping *http://www.tropical.com* Tropical shipping information, schedules, online bookings, rate quotes, and shipment tracking. [Exp. #177.]

UK Hotels And Conference Facilities *http://www.venuedirectory.com* [Exp. #176.]

UnCommon Courtesy *http://www.uncommoncourtesy.com* Motivational email service. [Exp. #176.]

Venus Systems *http://www.angelfire.com/biz/bactank/index.html* Bioremediation products. [Exp. #176.]

Video Imaging And Optical Products *http://www.mars-cam.com* Monitors/panels, CMOS cameras, CCD cameras, board cameras, lenses, pinhome lehses, fiberscope, and video capture systems. [Exp. #176.]

Video Plus *http://www.videosplus.com/biography/* Dozens of biographical videos including the A&E series and American Women of Achievment series. [Exp. #176.]

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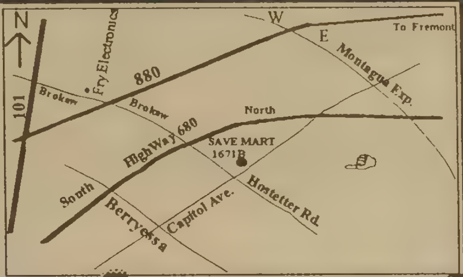

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- * Creative Labs AWE64
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- * Windows 95B CD&Manual
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- * 32 MB SDRAM 10ns
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- * EIDE PCI built-in I/O 16550
- *Diamond Fire 1000 Pro PCI 3D w/ 4MB SGRAM
- * ATX Medium Tower
- * Keytronic PS2 95 keyboard
- * Logitech PS2 Mouse w/Pad
- * Sony 24x EIDE CD-ROM
- * Yamaha stereo sound
- * 180 watt speakers
- *US Robotics Sportster 33.6
- * Free Power Surge+CPU fan
- * Windows 95B CD&Manual
- * MGC 17" Digital Monitor

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ASUS TX97X ATX SYSTEMS

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- * 32 MB SDRAM 10ns
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- *Diamond Stealth 64 3000 PCI 3D w/ 4MB VRAM
- * ATX Medium Tower 250W
- * KeyTronic Win95 keyboard
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- * Toshiba 24x EIDE CD-ROM
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- * Sony 24x EIDE CD-ROM
- * Yamaha Stereo Sound
- * 120 watt Stereo speakers
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- * Windows 95B CD&Manual
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- * 512K Pipelined Burst Cache
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- * Diamond St 64 3000 4MB
- * Mini Tower w/LED 230W
- * 104 Win95 keyboard
- * Logitech Mouse w/Pad
- * Sony 24x IDE CDROM
- * Yamaha Stereo Sound
- * 33.6 fax modem
- * 120 watt Stereo speakers
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- * Free Power Surge
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- * MGC 14".28 Digital Monitor

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AMD K6-200	1007
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AMD K6-200+Asus TX97E 512K	289
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Asus VX97+ P-200 MMX/512K	243
Asus VX97 + P-166 MMX/512K	215
Asus VX97+ P-133 /512K	195
Asus VX97 + P-100 /512K	175
Asus VX97 + AMD K6-233/512K	263
Asus VX97+ AMD K6-200/512K	239
Asus VX97 + AMD K6-166/512K	215
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Microsoft IntelliMouse (w/system)	35
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MITSUBISHI 2x2x6 REWRITER externalSCSI	545
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Fujitsu 2.10/ 2.60 /3.50/4.30 EIDE	140/165/185/205
Quantum 2.10/3.20 EIDE FB-ST DMA/33	165/190
Quantum 4.30/ 6.40 EIDE FB-ST DMA/33	215/295
Western Digital 2.10 / 2.50 GB EIDE	149/156
Western Digital 3.10 / 5.10 GB EIDE	180/225
Quantum 2.1/3.2 GB SCSI	220/245
Quantum 4.3/6.4 GB SCSI	286/350

TERMS AND CONDITIONS
1- One year parts & labor warranty
2- Not responsible for typos
3- Price and availability subject to change w/o notice
4- 15% Restocking fee on returns No refunds after 7 days
5- Prices based on cash or checks only

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VGA

TV+VGA Trident w/ 2mb w/remote	130
S3 SVGA PCI 1 MB video	25
S3 Virge 3D 64 PCI 4MB	Good 49
ATI All-in-Wonder 4MB PCI	170
ATI All-in-Wonder Pro 4/8MB PCI	235/285
ATI All-in-Wonder Pro 4/8MB AGP	245/295
ATI Xpert@Work PCI 4/8MB	130/175
ATI Xpert@Work AGP 4/8MB	165/210
ATI Xpert@Play PCI 4/8MB	155/199
ATI Xpert@Play AGP 4/8MB	165/210
Memory for Millennium I 2/4mb	50/120
MT Millennium II PCI 4mb/retail	155/185
MT Millennium II PCI 8mb/retail	210/275
Matrox Mystique PCI 2mb	70
DIAMOND	
Stealth 64 2001 2mb DRAM	50
Stealth 64 3D 2000 PCI 2mb/4mb	49/80
Stealth 64 3D 3000 4mb VRAM	Good 115
Stealth II S220 PCI 4 MB	89
MPEG Card upgrade (M1100)	70
Fire GL 1000 Pro 4MB/8 MB	Good 109/175
Viper 330 PCI / AGP 4MB	150/165
Viper 330 TV OUT PCI 4MB	160
Diamond Monster 3D PCI 4MB	150

CONTROLLERS

Adaptec SCSI 2940UW PCI	Good 149
Adaptec SCSI 2940U/3940 PCI	145/170

NETWORK CARD

3com 3C905 TX PCI/100BaseTX	75
NE2000 combo PNP-ISA /PCI	20/25

FAX-MODEM

33.6 Fax-Modem/Voice	49/49
PHOEBE 56K Fax-Modem/Voice	70
DIAMOND SUPRA 56K voice PnP	70
US ROBOTICS 33.6 (internal)	85/95
US ROBOTICS WINMODEM 56K	$89
US ROBOTICS 56 K /Voice	105/120
US ROBOTICS 56 K /Voice (Ex)	195/215

Water Well Pump Supplies Wholesale *http://www.sdapump.com* Selling direct to the public. [Exp. #176.]

Waterman Industries, Inc. *http://www.watermanusa.com* Water control equipment and irrigation. [Exp. #176.]

Welcome to QCI *http://www.qci.net* QCI is an unbiased telecommunications and management company offering full spectrum expertise across voice, video and data communications. [Exp. #178.]

WI Marketplace *http://www.wimall.com/funplace* Discount products for sale to everyone. Also, open your own storefront and earn commission. [Exp. #178.]

Wild Adventures *http://wild-adventures.com* An imaging company specializing in producing all types of imaging products. Scanning, printing, CD production and much more. [Exp. #177.]

Wirthlin Worldwide *http://www.wirthlin.com* [Exp. #176.]

Wood Architects *http://www.visionimaging.com/* Specializing in commercial, public, and accessible building in association with VisionImaging to provide digital computer color graphics and designs for many applications. [Exp. #176.]

World's Largest Candy Store Online *http://www.candydirect.com* Thousands of product choices. Free candy club with chat. [Exp. #176.]

Yes Private Cars, Inc. *http://www.yescars.com* Airport ground transportation, limousines and luxury cars. From JFK, Laguardia, New-ark ariports, door to door services, radio dispatcher cars. Since 1986 serving on all tri-state area. [Exp. #178.]

Yorba Park Medical Group *http://www.yorbapark.com* Yorba Park Medical Group is one of the top six medical groups in California, recognized for distinguished performance by the Medical Quality Commission and the Pacific Business Group on Health. [Exp. #178.]

GOVERNMENT/ POLITICS

Biodiversity Forum: Discuss Nature Conservation Online *http://real.geog.ucsb.edu/bioforum/home.html* Biodiversity Forum is a site for people like you to express views related to biodiversity loss and conservation. It is designed to serve public education, exchange, and opinion research objectives. [Exp. #176.]

Irish Trade Board's Internet Supersite *http://www.irish-trade.ie* Providing international buyers with comprehensive access to the sourcing capabilities of Irish companies. Available in six languages. [Exp. #176.]

K9 Officer's Reference Page *http://www.neosoft.com/~jmsjr/index1.htm* A reference page for law enforcement canine officers. [Exp. #176.]

Mumia Abu-Jamal Web site *http://www.mumia.org* Learn more about Mumia Abu-Jamal, read the latest updates on his case. [Exp. #176.]

NASA's Observatorium Searches For The Lost City Of Ubar *http://observe.ivv.nasa.gov/nasa/education/exhibits/ubar/ubar_0.html* See how the vanished Arabian trading center was found. [Exp. #178.]

Peacemaking & Crime *http://www.westga.edu/~jfuller/peace.html* Peacemaking & Crime seeks to provide information about peacemaking in the US criminal justice system and about alternatives to the war on crime perspective. Features include news items, an explanation of the perspective and links to related sites. [Exp. #176.]

Secret FBI Files Web Site *http://www.crunch.com/01secret/01secret.htm* Thousands of secret FBI files, never before suspected. [Exp. #176.]

User's Gude To The Declaration Of Independence *http://www.founding.com* Mainly for educational institutions, this site has 10,000 pages of essays, tracts, sermons, and other documents from the Founding Fathers. [Exp. #176.]

ARTS

A Odisho 3D Gallery *http://www2.inow.com/~mystery/gallery* A gallery of some nice, original 3-D pictures. Not many, but will add more soon. [Exp. #176.]

All *http://www.allarts.com* Fine Art prints and reproduction sales. [Exp. #177.]

American Photographer In Spain *http://www.angelfire.com/ca/fotografo* Fine B&W photography and Spanish landscapes! 3-D and Spanish links, too. [Exp. #178.]

Art Designer And Sculptor *http://www.rhughesartdesigner.com* Sculpture, private commissions, mobiles and prints. [Exp. #177.]

Art Of All Sorts *http://www.artofallsorts.com/* Buy reproductions of the great masters online! Cezanne, Chagall, WuChen, Gauguin, Hiroshige, Kahlo, Klee, Matisse, Monet, O'Keefe, Van Gogh, and more. [Exp. #176.]

Artist Roz Dimon *http://www.users.interport.net/~rozdimon* This incredibly famous artist spins an ongoing tale. [Exp. #176.]

Cannonball Express *http://www.canonbal.org* A video project-in-progress about urban firestorms, fire safety and environmental issues. [Exp. #178.]

Golden Gate Gallery *http://goldengategallery.com* Modestly priced art prints and originals by noted California artists, especially Don Irwin and Jane Gallagher. [Exp. #176.]

Native Hands Gallery *http://www.nativehands.com* The brainchild of Navajo silversmith Jennifer C. Redhorse, this new site is devoted to the history, techniques, materials, and makers of Indian silver jewelry. [Exp. #176.]

PhotoSphere Images, Ltd. *http://www.photosphere.com* PhotoSphere offers professional, royalty free stock images on CD-ROM, covering people, places, nature, backgrounds, and the economy. View our images and order collections online. [Exp. #176.]

Poem of the Month *http://www.writing.co.uk* Ongoing monthly poetry contest with prize and publication. [Exp. #178.]

Southwest Art Liquidation *http://www.fine-art.com/southwestart/Western* Native American art, bronzes, lithos, originals, sands, and more! [Exp. #176.]

Ted Alvy Cosmos Topper Home Page *http://pages.prodigy.com/FNJD74A* Art of '60s L.A. underground radio, rebop, beatniks, hipsters, hippies, zoot horn rollo. [Exp. #178.]

Wild Images By KKRImages *http://members.aol.com/denali33/cards/kkrimageshome.html* The site is about nature photography. [Exp. #176.]

ENTERTAINMENT /LEISURE

20 Something *http://home.inreach.com/droysdon/jroysdon/20something/* Undernet—IRC for people in their twenties and looking for good clean chat. [Exp. #177.]

A Piece Of Sky *http://www.galnet.net/~whiplash/* Quotes, poetry, music. [Exp. #178.]

Abercrombie & Kent *http://www.abercrombiekent.com* Adventure travel. [Exp. #176.]

Across The Bay Tent And Breakfast Adventure Co. *http://www.tentandbreakfastalaska.com/* How about stunning Kachemak Bay, in Southcentral Alaska, surrounded by rainforest, mountains and glaciers on the Kenai Peninsula. The only way to get to us is by water taxi, air or tour boat. Fly direct. [Exp. #176.]

Actual St. Louis *http://www.actualstlouis.com* An information showcase for and about St. Louis, MO. [Exp. #176.]

Ames Music CD's, Cassettes, And More! *http://www.AmesMusic.com* [Exp. #177.]

An American In Italy *http://www.hostetler.net/* An opinion of life in Italy plus tips on travel. [Exp. #178.]

Arcade Classic's ROM World *http://www.geocities.com/TimesSquare/Arcade/5187* Over 250 of your favorite classic arcade games free to download on your PC. [Exp. #177.]

Arctic Travel *http://www.arctic-travel.com* A travel guidebook that aims to become the most comprehensive guide to the Canadian Arctic is now online. [Exp. #176.]

Astrology Now! *http://onesky.com/astrology* Find detailed information about your astrological sign, compatibility with others, and of course horoscopes! [Exp. #176.]

Bitter End's Homepage *http://www.thebitterend.com* A peek inside San Diego's most exciting Gaslamp Quarter bar and dance club. [Exp. #178.]

Black Moon *http://www.black-kat.com/blackmoon* Promotes appreciation of Japanese animation and culture by showcasing current anime, art, and related exhibitions. [Exp. #176.]

Bowling Proprietors' Association of New Jersey Centers *http://www.bowl-nj.com* Everything about bowling in New Jersey. [Exp. #178.]

Briar Rose Bed and Breakfast Inn *http://www.briarrose.com* A Victorian B&B in San Jose, CA. [Exp. #178.]

Bright Spot *http://www.getawaynow.com/bahia-luminosa* Costa Rica—Bahia Luminosa beachfront resort and hotel where our forest meets the sea. [Exp. #176.]

Capt. Ted's Whooping Crane Tours *www.sirius.com/~sarabel/Crane.html* Vacation idea for the adventurous: where to go to see the whooping crane. Includes sounds and footprints plus original art. [Exp. #176.]

Celebrate History! *http://www.celebratehistory.com* A new, unique event for everyone who loves history—February 13-15 1998, South San Francisco, CA. [Exp. #176.]

Cheat Sheet For Travelers *http://www.oanda.com/cgi-bin/travel* A wallet-sized currency conversion table. [Exp. #176.]

CineSecrets *http://www.CineSecrets.com* Movie inside stories.The source of unofficial *Star Wars* inside information plus the making of *Highlander, Superman, Lifeforce, Krull*, and many others. [Exp. #176.]

Comedy-O-Rama *http://www.comedyorama.com* A great site filled with original, free comedy, RealAudio, comic strips, links, and more. [Exp. #176.]

David Patrick Ryan's Rivendell—The Music Of Enya *http://www.brodnet.com/users/r_david/enya01.htm* Wherever beauty is to be found in this world, one can picture it quite vividly when listening to Enya's musical pieces at Rivendell. [Exp. #176.]

Detroit's Woodward Dream Cruise Juke Box *http://www.nexusit.com/woodward/index.html* Featuring a slide show and streaming music. [Exp. #176.]

Dharma The Cat's Cartoon Site *http://www2.one.net.au/~lourie* The thinking person's cartoon strip and forum. [Exp. #178.]

DJ14K's Tapes R Us *http://www.geocities.com/SunsetStrip/Studio/4513* Wicked selection of reggae sound-system tapes and videos for sale/trade. Also, check the sounds, links, and the massive list! [Exp. #176.]

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P6LXIS-233~333+,P-II,440LX,4xPCI/3xISA/1xAGP,2940UW/2xUIDE,4xDim,USB,ATX	$ 275
P6LXI-233~333+,P2,440LX,4xPCI/3xISA/AGP,2xUltra/IDE,I/O,4xDim,2xUSB,ATX,Award	$ 157
P6KDI/S-233~300+,Dual P-II,5xPCI/3xISA/Raid,2940UW/2xUIDE/IO,4xDim,USB,ATX	$ 375
P6NDP-150~200Mhz,Dual/Pro,Natoma,4xPCI/4xEISA/Raid,2940UW SCSI/IO,2S/1P,AMI.	$ 579
P6NPI/S-150~200Mhz,P-Pro,Natoma,4xPCI/Raid/4xISA,2940UW SCSI,2xIDE/IO,ATX	$ 259
P6NPI-150~200Mhz, P-Pro,Natoma,4xPCI/4xISA,2xIDE/IO,2S/1P,4x72-pin,USB,ATX	$ 149
P54TXI/S-233MMX/K5/K6,TritonTX,512K,4xPCI/3xISA,2940UW/UIDE/IO,2S/1P,ATX	$ 219
P54TXI-75~233MMX/K6,Triton TX,512K,4xPCI/4xISA,2xIDE/IO,2S/1P,4x72,AMI,ATX	$ 109
Adaptec RAID ARO-1130,PCI-to-SCSI MultiChannel Array Adapters (Raid 0,1,5),w/Kit	$ 215

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P6DLS-233~333+,Dual P-II,440LX,4xPCI3xISA,2940UW/IDE/IO,2S/1P,USB,Full ATX	$ 355
P6DLE-233~300+,Dual P2,440LX,4xPCI/3xISA/AGP,2xUltra/IDE/IO,2S/1P,2xUSB,ATX	$ 259
P6DLF-233~300+,Dual P2,440LX,5xPCI/3xISA/AGP,2xUIDE/IO,8xSim/4xDim,Full AT	$ 295
P6SLS-233~300+,P2,440LX,4xPCI/3xISA/AGP,2940UW/2xUIDE/IO,2S/1P,4xDim,ATX	$ 259
P6SLA-233~300+,P2,440LX,4xPCI/3xISA/AGP,2xUlta/IDE/IO,2S/1P,3xDim,2xUSB,ATX	$ 159
P6DKS-233~300+Mhz,Dual P-II,440FX,4xPCI/4xISA,2940UW/2xIDE/IO,2S/1P,Full ATX.	$ 275
P6SKS-233~300+Mhz,P-II,440FX,4xPCI/4xISA,2940UW/2xIDE/IO,2S/1P,USB,Full ATX	$ 215
P6SNEII-233~300+Mhz,P-II,440FX,5xPCI/4xISA,2xIDE/IO,2S/1P,6x72-pin,AMI,Baby AT	$ 189
P6SKEII-233~300Mhz,P2,440FX,4xPCI/4xISA,2xIDE/IO,2S/1P,6x72-pin,AMI,ATX,USB	$ 129
P6DNH2-150~200,Dual/Pro,Natoma,i960,8xPCI/3xISA,2xIDE/IO,2S/1P,8x72-pin,Full AT	$ 545
P6DNF-150~200Mhz,Dual/Pro,Natoma,4xPCI/4xISA,2xIDE/IO,2S/1P,8x72-pin,Full AT	$ 269
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P5MMS98-75~200MMX/K5/K6,430TX,4xPCI/4xISA,2xIDE/IO,2S/1P,4x72-in/2xDimm,AT	$ 135
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TYAN

S-1696DLUA-233~300+,Dual P2,440LX,4xPCI/2xISA/AGP,Dual 2940WU/2xIDE,ATX	$ 435
S-1692DL-233~300+,Dual P-II,440LX,5xPCI/2xISA/1xAGP,2xUIDE/IO,4xDim,USB,ATX	$ 269
S-1692SL-233~300+,Single P2,440LX,5xPCI/2xISA/AGP,2xUltra/IDE/IO,4xDim,ATX	$ 175
S-1682D-233~300Mhz,Dual P-II,440FX,5xPCI/3xISA,2xIDE/IO,2S/1P,8x72pin,ATX,AMI	$ 259
S-1686S-233~300+,P-II,440FX,5xPCI/4xISA,2xIDE/IO,2S/1P,8x72,2xUSB,ATX,Award	$ 189
S-1662D-150~200,Dual Pro,Natoma,5xPCI/3xISA,2xIDE/IO,2S/1P,8xSim,2xUSB,AT	$ 269
S-1564D-75~200MMX,Dual/P,TritonII,512K,4xPCI/5xISA,2xIDE/IO,2S/1P,8x72,AT	$ 185
S-1564S-75~200MMX,Single/P,TritonII,512K,4xPCI/5xISA,2xIDE/IO,2S/1P,8x72,AT	$ 149
S-1571S-75~200MMX/K5/K6,430TX,512K,5xPCI/4xISA,IDE/IO,2xDim,Simm,AT,Award	$ 109

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M1DLS-233~300+,Dual PII,440LX,3xPCI/2xISA/AGP,2xIDE,2xUSB,4xDim,ATX	$ 459
M1SLT-233~300+,PII,440LX,4xPCI/3xISA/AGP,2xIDE/IO,2S/1P,4xDim,USB,ATX	$ 229
M1DFD-233~300+,Dual PII,440FX,4xPCI/2xISA,2xIDE/IO,2S/1P,4xDimm,ATX	$ 349
M1SFW-233~300+,P-II,440FX,4xPCI4xISA,2xIDE/IO,2S/1P,4x72/2x168,ATX	$ 198
M8SFIN-150~200Mhz,Natoma,4xPCI/4xISA,2xIDE/IO,2S/1P,4x168-pin,ATX	$ 219
M7STA-75~233/K6,430TX,512k,5xPCI/4xISA,IDE/IO,2S/1P,4x72/2xDim,AT or ATX.	$ 159
M7STTB-75~233MMX/K6,430TX,512k,4xPCI/4xISA,2xIDE/IO,2S/1P,2x168,ATX	$ 149
M7S-Hi-75~233MMX,430HX,512K,4xPCI/4xISA,2xIDE/IO,2S/1P,4x72,ATX	$ 179

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Dakota-Dual P2,3xPCI/1x2xISA/AGP,2xUltra/IDE,2xUSB,4xDim,VGA,PnP,ATX	$ 549
Atlanta-P-II,440LX,3xPCI/2xISA/1xAGP,2xIDE/IO,2xUSB,3xDimm,Phoenix,ATX	$ 198
Portland-P-II,440FX,3xPCI/3xISA,2xIDE/IO,Yamaha Audio,USB,4x72-pin,ATX	$ 169
Venus-Pentium/Pro-150~200Mhz,Natoma,4xPCI/3xISA,2xIDE/IO,2S/1P,4x72,ATX	$ 98
Anchorage-75~200MMX/K6,430TX,512K,3D Yamaha Sound,IDE/IO,ATX	$ 179
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M Technology, Inc.

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R534-75~200+/MMX,SIS,512k,3xPCI/5xISA,2xIDE/IO,USB,2xSdram,Award,AT	$ 109
R539-75~200MMX/K6,430TX,512k,4xPCI/5xISA,2xUIDE/IO,4xSim/2xDim,USB,AT	$ 113

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P2L97-DS-233~333+,Dual P-II,440LX,4xPCI/2xISA/1xAGP,2940UW/2xIDE,ATX	$ 398
P2L97-DS-233~333+,Dual P-II,440LX,4xPCI/2xISA/1xAGP,2xUIDE,4xDim,ATX	$ 329
P2L97S-233~333+,P2,440LX,4xPCI/2xISA/AGP,2940UW/2xUIDE,3xDim,USB,ATX	$ 255
P2L97-233~333+,P-II,440LX,4xPCI/2xISA/1xAGP,2xIDE,3xDimm,USB,ATX	$ 169
P5TX97-E-200MMX/K5/K6,TritonTX,512k,4xPCI/3xISA,IDE/IO,2S/1P,4x72/2xDim.	$ 135
P5TXP4-75~233MMX/K6,430TX,512k,4xPCI/3xISA,2xUltra/IDE,4xSim/2xDim,AT	$ 115

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KL-6011-233~333+,P-II,440LX,5xPCI/2xISA,2xUIDE/IO,3xDim,2xUSB,ATX	$ 189
PA-2012-75~233MMX/K6,VIA VP3,1M cache,4xPCI/2xISA/AGP,U/IDE,Dim,ATX	$ 145
PA-2007-75~200MMX/K6,VIA590,1M cache,4xPCI/3xISA,2xUIDE/IO,4xSim/2xDim	$ 109
PT-2011-75~200MMX/K6,430TX,512k,4xPCI/4xISA,2xUIDE/IO,Sim/Dim,ATX,AMI.	$ 105

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MB-M6TLA-233~333+,P2,440LX,4xPCI/3xISA/AGP,2xIDE/IO,4xDim,2xUSB,ATX	$ 149
MB-M6TLC-233~333+,P2,440LX,4xPCI/3xISA/AGP,2xIDE/IO,3xDim,USB,ATX	$ 139
MB-8500TTD-75~200MMX/K6,TritonTX,512K,4xPCI/3xISA,IDE/IO,2S/1P,2xDimm	$ 98
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Pnetium-233MMX Mhz	$999

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- *Diamond Supra 56K Fax/Voice Modem
- *32x Speed IDE CD-ROM
- *Teac 3 1/2", 1.44MB Floppy Drive
- *Mid-Tower, w/250W (ATX)
- *MS-Mouse & 104keys Keyboard
- *ATI Xpert@Play PC2TV 4M/AGP(upto 8M)
- *MS-Windows95" Installed (licensed)

Pentium-II-233Mhz,w/512k cache	$1199
Pentium-II-266Mhz,w/512k cache	$1299
Pentium-II-300Mhz,w/512k cache	$1479
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Upgrade to SCSI	$Call

Dream Machine

- *Dual Pentium-II w/440LX chip,CPU Ready
- *64MB SDRAM Memory (upto 1GB)
- *2xUltra IDE/IO(33MB/Sec),2S/1P
- *Adaptec 2940 Ultra/Wide SCSI3(40MB/Sec)
- *4.3GB Ultra/Wide SCSI3 Harddisk
- *Iomega 100MB IDE Zip Drive + Tools
- *USRob Sportster 56K Data/Fax Modem
- *Creative Lab AWE64 PnP
- *Yamaha Stereo Speaker, w/Retail
- *Diamond Fire GL 1000 Pro AGP w/8MSG
- *32x Speed IDE CD-ROM
- *Teac 3 1/2", 1.44MB Floppy Drive
- *Full-Tower, w/250W (ATX)
- *MS-Mouse & 104keys Keyboard
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Dual Pentium-II-300Mhz, w/512k	$3299

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Intel P2-233/266	$298/$389
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Intel MMX-166/200/233	$115/$139/$215
ntel P-150/166/200	$99/$119/$Call
Intel P-100/120/133	$75/$89/$109
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ATI Xpert@Work 4/8MB/PCI	$129/$175
ATI Xpert@Work 4/8MB/AGP	$139/$179
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Toshiba 3801B,99ms,16X,SCSI/Int	$99
Toshiba 6202,99ms,32x,IDE/Int	$99
Mitsumi-FX240S,24x,99ms,IDE	$69
Sony CD-928EC,2xW/8xR Rewriteable	$359
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NEC 1610,16X,115ms,SCSI,Int	$119
Plextor-20CSI,115ms,12X,SCSI/Cady	$235
Plextor-20TSI,99ms,20X,SCSI/Tray	$215

MultiMedia

Sound Blaster 16/AWE64	$49/$79
USRob Sportster 56K Int/Ext	$129$195
USRob Sportster 33.6 Int/Ext	$89/$149
Diamond Supra 33.6/56K w/Voice	$59/$95

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Adaptec 2940U SCSI PCI w/kit	$165
Adaptec 2940UW, Ultra/Wide SCSI/kit	$198
3Com-3C900 PCI Combo	$79
3Com-3C905TX 10/100PCI	$69
Intel Etherxprs Pro 10/100,PCI/TP	$59
HP-C1554,4mm Dat 12/24GB SCSI	$1089
HP-C1599A,4mm Dat,8GB SCSI Int	$729
HP-C1536,4mm Dat 4GB SCSI Int	$579
HP-T3000,3.2GB TR3 Tape backup	$175
HP-T4000T,4/8GB TR4 SCSI	$365
HP-4345,2.5/5GB IDE Tape backup	$219

Seagate Tape Backup Drive:

STT28000A, 4/8GB TR4, IDE	$289
STT28000N, 4/8GB TR4, SCSI	$319
STD24000N,2/4GB,DDS-2,SCSI	$549
STD28000N,4/8GB DDS-2,SCSI	$679
STD224000N,12/24GB,DDS-3SCSI	$949

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1435,14",1024x768,.28,N/I	$139
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447Xi,17" 1600x1280,.25N/I,Sonytube	$619
445XAV,21",1600x1280,.26N/I	$1498
445XI 21" 1600x1200,.26,TCO95	$1429
445XI Pro,21",1800x1440,.21MP	$1549

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CPD-200ES,17",1280x1024,.25N/I,60hz	$619
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Jazz Drive 1GB SCSI Int/Ext	$275/$369
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Quantum-34320S,4,3GB,10ms,U/S3	$345
Quantum-34550SW 4.5GB UW/S3,8ms	$439
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Seagate-19171N,9.1GB,U/S3,8ms,7200rpm	$769
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Seagate-423451W,23GB,UW/S3,8ms	$Call

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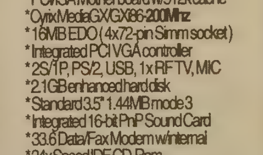

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- *Integrated PCI VGA controller
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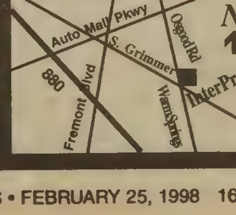

Web Page Listings *continued...*

Dolphin Yacht Charters *http://www.dolphinchar.com* Cruise the islands in our sailboat yachts for your vacations in St. Vincent, Grenadines, Barbados, and other Caribbean Islands. [Exp. #176.]

DR's Sports *http://www.signatures.com* The best "in-person" sports and celebrity autographs on the Internet. [Exp. #176.]

DVD Source *http://www.dvd-source.com* Discounted DVD movies with an online catalog and searchable database. [Exp. #176.]

Dystopia Daily Cartoon *http://www.dystopiacartoons.com* Droolingly funny daily cartoons penned by a confessed mental defective. For those suffering from Far Side withdrawal, Dystopia is a cartoon methadone clinic. [Exp. #178.]

Earthquake City BBS *http://members.tripod.com/~eqcitybbs/Index.htm* Earthquake City BBS, Computers By Candlelight (radio show), Chrome Oxide music collector pages, lots of links. [Exp. #176.]

EcoChoices Community *http://www.ilovethisplace.com* Created to help personal development. Over 40 message boards, Eco-Homes gallery, healthy coupons, political ballot pages, etc. [Exp. #178.]

Empire Cigar Company *http://www.empirecigar.com* The finest in premium cigars and cigar-related accessories. . [Exp. #176.]

Film Production Advertising Television Commercial International *http://www.dragonslayer.com.au* Virtual showcase of our spots. [Exp. #176.]

Fort Payne Alabama City Limits *http://www.fortpayne.com* Great pics and overview of this scenic community. [Exp. #176.]

Ghosts Of The Prairie *http://www.prairieghosts.com* Discover the Ghosts and haunted places of America with author and ghost hunter Troy Taylor. [Exp. #178.]

Go Camping America *http://www.gocampingamerica.com* Your full hook-up to the world. [Exp. #178.]

Gold Club Casino *http://www.goldclubcasino.com/* The ultimate online gambling experience. [Exp. #176.]

Gordie Howe Online *http://www.gordiehowe.com* The complete direct source for Gordie Howe collectables. [Exp. #178.]

Green Theme International Home Exchange Holidays *http://green-theme.zb.net* Home exchange holidays for economical vacations and environmentally friendly travel. [Exp. #178.]

The Hitmen *http://www.rootsworld.com/hitmen/* The Hitmen, a music group. [Exp. #176.]

HOF Memorabilia *http://www.hofmemorabilia.com* Specializing in authentic autographed sports memorabilia. [Exp. #176.]

Hotels And Condos, Reservations Service For The Cayman Islands *http://www.silvanaus.com* Caribbean Dreams—destination management and reservations. [Exp. #176.]

Israel Tour Connection LLC *http://www.israeltour. com* Bar/Bat Mitzvah Israel tour experts. [Exp. #178.]

J & S Ranch *http://jsranch.org* A premier horse boarding, traning, and sales facility. [Exp. #176.]

Jason's MUME Home Page *http://home.inreach.com/droysdon/jroysdon/MUME* MUME is a live, multi-user dungeon fantasy roleplaying game based on J.R.R. Tolkien's Middle-Earth. [Exp. #177.]

KZ Mobile Entertainment Services *http://pw2.netcom.com/~lilalynn/KARAOKEZONE.html* KJ's/DJ's, vocal acts, photographer, etc.; Karaoke show listings and equipment distributor. [Exp. #178.]

Let's Eat OC *http://www.letseatoc.com/otherpub.htm* Orange County's most comprehensive online restaurant and bar directory. [Exp. #178.]

Main Events Online *http://www.mainevents.com* Main Events is one of the largest boxing promotional firms in the world. [Exp. #176.]

Mammothnet *http://mammoth-net.com/* A vacation and holiday resource for condominium rentals in the Mammoth Lakes, CA region. [Exp. #177.]

Manitoba Canada's Premier Fly-in Fishing Lodge And Outpost *http://www.fishingmanitoba.com* We offer you areas which have never been sport fished before. [Exp. #178.]

Maui Island Currents *http://www.islandcurrents.com* A feast of regularly updated information on and culture, dining, activities, and events on the paradise called Maui. [Exp. #176.]

Mexico Travel Guide *http://www.go2mexico.com* The Mexico Travel Guide gives you the resources to plan, enjoy, and make the best of your vacation and investment in Mexico with up to date information. [Exp. #178.]

Milan Rugby Official Web Site *http://www.milanrugby.com* The Milan Amatori Rugby S.r.l. official Web site. [Exp. #177.]

Mirimar Cruises *http://www.mirimar.com* Mirimar Cruises of Brisbane, Australia, has a long and proud tradition of service to the people of Brisbane and to the many thousands of visitors who grace our lovely city every year. [Exp. #176.]

Modified *http://www.modified.com* The surf sound of the '90s. [Exp. #177.]

Monterosa Italian Paradise *http://www.monterosa.com* About skiing and vacationing in Monterosa. [Exp. #176.]

Music Mayhem *http://www.geocities.com/Colosseum/Loge/7605/* This site is for alternative and ska music fans! [Exp. #176.]

Never Forget Again! Lifetime Reminder Service *http://home.cwnet.com/remindme* [Exp. #176.]

Nothing But Golf *http://www.NothingButGolf.com* Golf contests, trivia, discussions, jokes, tournaments, schedules, rules, resources, handicaps, Hole-In-One registry, and more. [Exp. #176.]

Online Sports League Information And Communication Manager *http://www.sportsdataonline.com* A faster, easier, and more efficient way of managing your sports league. [Exp. #176.]

Orange County Info *http://www.inorangecounty.com* This site is updated daily and has Orange County specific info on entertainment, arts, news, etc. [Exp. #176.]

Orchid13 *http://www.orchid13.com/* Photography, poetry, weird and unusual, .wav files, David Bowie page. [Exp. #176.]

P&S Records *http://www.psrecords.com* Princess and Saint Records, the Internet's only full-service record company. [Exp. #176.]

Paradise Cruises & Tours *http://www.paradisecruisesandtour.com/* A family owned and operated travel agency specializing in tours, cruises, and honeymoons. [Exp. #178.]

PASS Hockey enterprises, Inc. *http://passhockey.com* Hockey skill development. [Exp. #176.]

Perfect Harmony *http://www.madrecords.co.uk* Order our double CD containing a selection of classical organ and choral wedding service music for a church service. [Exp. #177.]

Perry Kurtz Comedy Pages *http://home.earthlink.net/~perrycycle* L.A. comedian Perry Kurtz creates new forms of comedy daily. Now available for all occasions. [Exp. #177.]

PL8S.COM *http://www.pl8s.com/index.htm* The license plate collector's Web site. [Exp. #178.]

Pleasures Of The Table *http://www.deg.com* Fine cuisine, luxury travel, fine wine, celebrity chefs. [Exp. #178.]

RENT—An Unofficial Site *http://www.lifecafe.com* The unofficial Rent site, designed by a devoted fan. [Exp. #178.]

Round Flat Records *http://www.roundflat.com* [Exp. #176.]

Salt City Athletics Online *http://www.wingchun.net* Featuring Ling Wood Chuan Wing Chung Kung Fu, Balintawak Arnis, kickboxing, and boxing. [Exp. #176.]

SmokiesOnline *http://www.smokiesonline.com* Your Internet resource for planning a Smoky Mountain vacation. [Exp. #176.]

SongHits.com *http://www.songhits.com* Full-length hit songs in streaming RealAudio. [Exp. #176.]

Sound Techniques Television *http://www.users.globalnet.co.uk/~boriswb* British acoustic guitar videos. [Exp. #177.]

Space Adventures Web *http://www.spaceadventures.com* Your space travel agency, bringing space tourism to the world! [Exp. #176.]

Spacecraft Model Kits *http://www.scikits.com* Order Spacecraft Scale Model kits online at low cost! [Exp. #176.]

SportsExtra *http://www.sportsextra.com* Up-to-the-minute sports news, information, and contests. [Exp. #178.]

Star Wars: Episode 1 *http://www.starwars.com/episode-i* Information about the *Star Wars* prequels. Episode I is due in May 1999. [Exp. #176.]

SurfBike: Cycling On Water *http://www.surfbike.ca* A fun, innovative, and environmentally friendly new watersport. [Exp. #176.]

Teams of the World *http://www.islandia.is/totw/* A football (soccer) club database that continues to grow. [Exp. #176.]

Telery *http://www.telery.com/public/default.htm* A place to chat, play games, and have fun with your friends! Live chat, a casino, online games, free email and homepages! [Exp. #176.]

Tom Clancy Politika Web Site *http://www.politika.power-plays.com* Learn more about Tom Clancy's latest paperback book, *Power Plays: Politika*, test your knowledge of Russian history, geography, and culture in the Politika Challenge, and chat with other Tom Clancy fans. [Exp. #176.]

Touring Club of Switzerland *http://www.tcs.ch* The TCS helps you to enjoy safe and easy travel in Switzerland and abroad. [Exp. #178.]

Trails And Rails Mountain Bike Tours *http://www.trailsandrails.com* Experience the spectacular scenery of the Colorado Rocky Mountains in the saddle of a mountain bike! [Exp. #178.]

Twinkling Star Casino *http://www.twinklingcasino.com* A complete virtual casino with slot machines, poker, and black jack tables. [Exp. #176.]

United States Fantasy Sports *http://www/usfantasysports.com* [Exp. #178.]

Wizard And Glass Web Site *http://www.darktowerIV.com* Wizard and Glass is the fourth volume in Stephen King's epic Dark Tower series. [Exp. #176.]

Yoli Gim *http://www.yoligim.com* Yoli Gim, the first virtual gym, offers an easy way to workout from home and get fit. [Exp. #176.]

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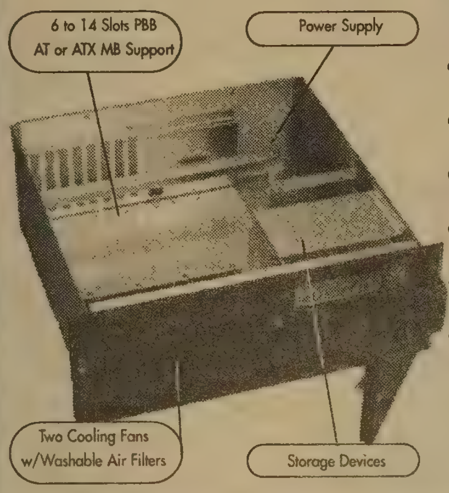
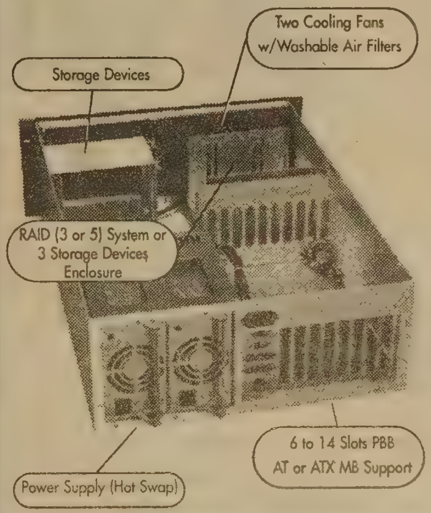

6 to 14 Slots PBB AT or ATX MB Support
Power Supply
Two Cooling Fans w/Washable Air Filters
Storage Devices

Specifications:

- Faceplate Dimensions: 19"W x 7"H
- Chassis Dimensions: 17"W x 7"H x 17"D
- Weight: 15 lbs. w/o Power Supply
- Peripherals: Up to 4 Storage Devices
- Steel & Aluminum Construction
- Power Supply
- Cooling Fans: Two 60 CFM Intake Fans
- Expansion: PCI/ISA Passive Backplane (6-14 slots), Segmented up to 2 systems

19" RACKMOUNT ENCLOSURE


Two Cooling Fans w/Washable Air Filters
Storage Devices
RAID (3 or 5) System or 3 Storage Devices Enclosure
6 to 14 Slots PBB AT or ATX MB Support
Power Supply (Hot Swap)

Specifications:

- Steel & Aluminum Construction
- Faceplate Dimensions: 19"W x 7"H
- Chassis Dimensions: 17"W x 7"H x 24"D
- Weight: 17 lbs. w/o Power Supply
- Expansion: PCI/ISA Passive Backplane (6-14 slots)
- Power Supplies: 230,250, 300 to 400W Hot Swapable Power Supply (250-400W optional)
- Cooling Fans: Two 60 CFM Intake Fans
- RAID Level 5 11.2GB HD
- Door: Dustproof & Lockable
- Up to Nine Storage Devices

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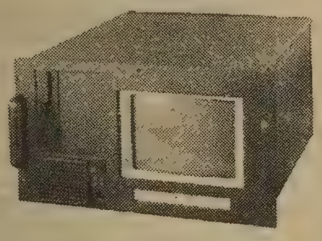
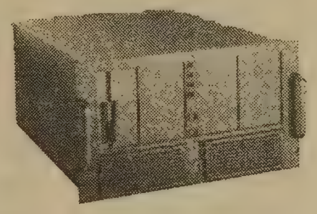
19" RACKMOUNT w/MONITOR



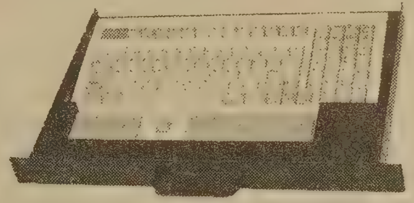
- 19" Rackmounting
- Integral Monitor
- 10" .28 dot pitch SVGA Color
- 9" Mono-TTL or VGA
- 8 or 14 Slot Passive Backplane
- 8 Slot Motherboard Mounting
- U.S.A. Manufactured

HARD DISK CD-ROM ENCLOSURE



- 8, 14 & 20 Slot Options
- Dual Power Supplies
- Hot Swappable Redundant Power Supplies (Optional)
- 8 Drive Bays
- 8 Fans
- Motherboard or Passive Backplane
- 200-600 Watt Power Supply
- U.S.A. Manufactured

19" RACKMOUNT KEYBOARDS



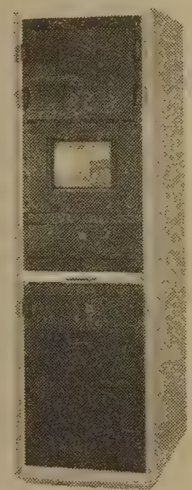
RMK-102

- Space for Mouse or Trackball
- Switch Selectable for PC XT/AT or PS/2
- 20,000,000 Life Cycles per switch
- Separate Numeric and Cursor Keys
- Twelve Function Keys
- Suplied 22" Sliding Rail for 19" Rack
- 19" (W) x 1.75 (H) x 16.5" (D)

RMK-102TB w/ Trackball

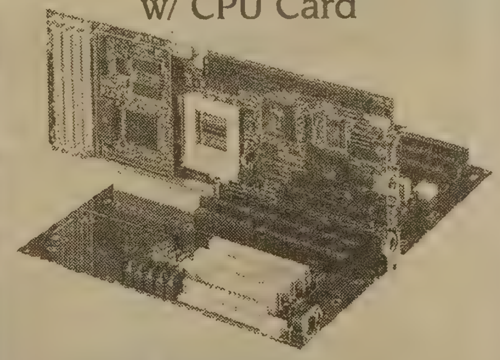
- Compatibility: Microsoft &/or PS/2 PDP
- Interface: RS-232C or PS/2 PDP
- Connector: DB-9 Serial or 6-pin Mini DIN
- Encoder: Opto-mechanical
- Tracking Speed: 500mm/sec. (20"/sec.)
- Switch Lifetime: 1 Million Cycle
- 19" (W) x 1.75 (H) x 16.5" (D)

RACK MOUNT CABINETS



From 21"–78" Available

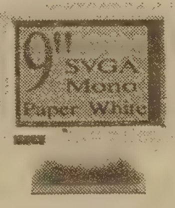
PASSIVE BACKPLANE BOARD w/ CPU Card



- ISA BACKPLANE BOARD 3 to 20 Slots
- PCI BACKPLANE BOARD 8, 14, 20 Slots
- Segmented Backplane Available

9" SVGA MONITOR MONO PAPER WHITE

- CRT: 9" DEFLECTION NON-GLARE PAPER WHITE
- RES: 1024x768, 720x400, 640x480
- POWER SUPPLY: 100-240V



Terms & Conditions

Prices subject to change without notice. Not responsible for typos or errors. Prices based on cash. Please ask about products not listed in this advertisement. 1 year warranty on parts.

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41786 Christy Street
Fremont, CA 94538

Under previous business name: Multi-Micro Systems, Inc.

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TEL:(510) 440-0841 • FAX:(510) 440-0205
Mon-Fri: 8:30am-5:30pm PST

Product Spotlight

Updates

Multi-Ad Services, Inc. introduced **Creator2**. The first software for Mac users to combine layout and design capabilities in one package. ($649) Multi-Ad Services, Inc., 1720 W. Detweiller Dr., Peoria, IL 61615. 1-800-245-9278 or *www.creator2.multi-ad.com* .

GoldMine Software Corp., a contact manager for workgroups has introduced 3 new products into its product family, **GoldMine 4.0 client/server for SQL databases** and **GoldMine 4.0 dBase IV**. Goldmine Software Corp., 17383 Sunset Blvd., Ste. 301, Pacific Palisades, CA 90272. *www.goldminesw.com* .

Netscape Communications Corp. presents **Netscape Application Server 2.0**. An Internet application server for deploying business-critical applications on the Internet and Extranets. $25,000 per CPU on the Windows NT and $35,000 per CPU on the Sun Solaris, HP-UX, and Silicon Graphics IRIX operating environment. Netscape Communications Corp., *www.home.netscape.com* , or (415)937-3777.

MC Research Ltd. introduced **LinkUP! 7**. A QuarkXPress extension that includes full support for relational databases, automated catalogue publishing functionality, picture usage analysis and more. MC Research Ltd., Ste. A, Squires House, 81-87 High St., Billericay, Essex CM12 9AS, UK or *www.mcresearch.co.uk* .

UMAX Computer Corp. extends a special offer to loyal owners of its complete line of Mac-compatible systems. **PowerPC 750 Processor card** is available for $1,195, while supplies last. UMAX Computer Corp., 1-800-232-UMAX, or *www.umax.com* .

Command Software Systems, Inc. announces **AntiVirus v4.0**, that includes three client platform versions of it's anti-virus software in one package. ($49.95) Command Software Systems, Inc., 1061 E. Indiantown Rd., Ste. 500, Jupiter, Fl 33477. 1-800-423-9147, or *www.commandcom.com* .

AdKnowledge, Inc. introduced **ClickWise 2**, the newest version of its ad management software for Web sites. For sites serving more than 10,000 ads per day, annual licenses start at $5,000. Available at the AdKnowledge Web site: *www.adknowledge.com* .

Interstar Technologies released **Lightning FAX 5 for NT**. Whether your needs are small or you are looking for a high-volume, enterprise-wide fax server solution, Lightning FAX 5 can fill that gap. (Ten-pack license, $524) Interstar Technologies, 5835 Verdun Ave., Ste. 302, Montreal, Quebec, Canada H4H 1M1. (514)766-1668, *www.faxserver.com* .

Voice Technologies Group, Inc. has announced the release of **PhoneCetera version 2.0**. It's a low-cost plug-in PC Solution for enhancing the productivity, of the SOHO worker. Voice Technologies Group, Inc., 2350 North Forest Rd., Buffalo, NY14068-1296. (716)689-6700, or *www.vtg.com* .

Pacestar Software has released version 2.1 of its **EDGE Diagrammer** package for Windows 95 and NT. It's one step towards Pacestar's goal of simplifying the drawing of diagrams and flowcharts. ($129.95 or a free 30-day trial—copies can be downloaded from *www.pacestar.com*) Pacestar Software, P.O. Box 51974, Phoenix, AZ 85076-1974 or (602)893-3046.

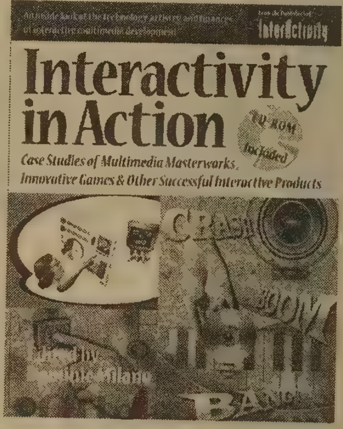
SpaceWorks, Inc. presented its **OrderManager V. 3.0** application. The award-winning electronic commerce solution automates the supply chain transactions for FORTUNE 1000 companies. ($100,000-250,000) SpaceWorks, Inc., for more info visit their Web site at *www.spaceworks.com* .

Anawave Software, Inc. announced the final release of **CoolCat 4.0**. Designed for current and aspiring Web designers. ($99.95) Anawave Software, Inc., 1300 Bristol N., Ste. 220, Newport Beach, CA 92660. (714)250-7265, or *http://www.anawave.com* .

Product Announcements

Books

Interactivity in Action

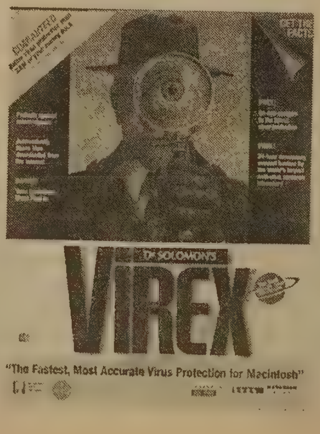

Interactivity in Action
CD-ROM Included
Case Studies of Multimedia Masterworks, Innovative Games & Other Successful Interactive Products

Interactivity in Action: Case Studies of Multimedia Masterworks, Innovative Games & Other Successful Interactive Products tells how some of today's leading developers have overcome technical, artistic, and financial obstacles to create innovative interactive products. This book and two companion CD-ROMs provide detailed how-to information on the tools and techniques used, as well as insights on the creative challenges involved. Edited by Dominic Milano, *Interactivity in Action* offers specific case studies exploring a wide range of interactive products—including games, Web sites, children's edutainment CD-ROMs, interactive comic books, online soap operas, corporate training courses, and more. ($39.95) Miller Freeman Books, 6600 Silacci Way, Gilroy, CA 95020. 1-800-848-5594. *www.books.mif.com* .

Macintosh Software

Dr Solomon's Virex 5.0

Virex is designed to meet the growing need for Macintosh virus protection due to the proliferation of macro viruses. With Scan-At-Download, Virex automatically protects users from viruses in files downloaded from the Internet and email attachments—relieving users from specifying searches by name of files, folders or volumes. Other features include:



SpeedScan increases the scanning speed; Macro Virus Protection detects and repairs infected documents before they are opened by Microsoft Word or Excel; Compressed File Scanning scans zip archives and files compressed with StuffIt Deluxe, Compact Pro, Disk Doubler, Auto Doubler, and Now Compress; a Virus Encyclopedia gives you a wealth of virus information; and an intuitive interface makes virus reporting fast and flexible. (Estimated Street Price, $69; Virex

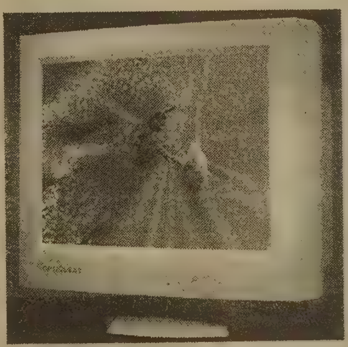
Protection Service, $75, includes monthly virus updates via email, all product feature upgrades, and a toll-free tech support.) Dr Solomon's Software, Inc., 1 New England Executive Park, Burlington, MA 01803. 1-888-DrSolomon or (781)273-7400. *www.drsolomon.com* .

Monitors

KDS USA Avitron Monitors ▶

The new Avitron line of 15" and 17" color monitors feature Sony Trinitron technology, KDS USA's own TrueView advanced user control set, KARES customer service program, and a comprehensive starter kit/user manual. TrueView on-screen display of feature controls allows users to adjust eleven different image settings. These animated icons will alert the user when on adjustment of one feature (such as contrast) has a complimentary control that can adjust another, related feature (such as brightness). This makes it possible to achieve the perfect setting without have to keep returning to the main menu. The Avitron line is compatible with both PC and Macintosh computers and is backed with a full three-year warranty on parts, CRT, and labor. In addition, the KDS Advanced Replacement Express Service (KARES) program covers the lifetime of any Avitron model and is a fast and convenient system to quickly receive a replacement monitor in the event your monitor requires service. (15" AV-5T, $349.99; 17" AV-7T, $629.99; AV-9T, $849.99.) KDS USA, Inc., 12300 Edison Way, Garden Grove, CA 92841. 1-800-237-9988. *www.kdsusa.com* .

Optiquest V115T ▶

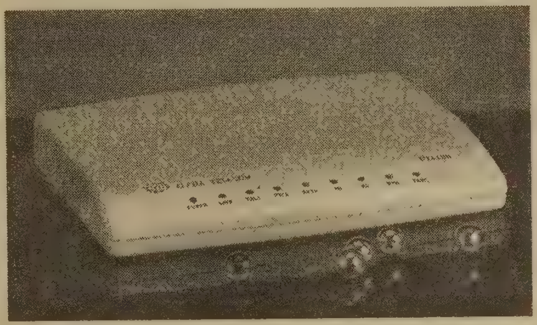


As the first aperture grille monitor in the Optiquest line, the vertically flat, 21" DiamondTron V115T screen offers super-bright, color-saturated images with less distortion. Its 0.28mm stripe pitch produces sharp, crisp images and features a 89Hz refresh rate at 1280 x 1024 resolution. The ARAG screen treatment provides anti-reflection, anti-glare protection while enhancing picture quality. OnView controls, a user-friendly system, saves time by providing one-touch digital controls to adjust images with precision. ViewMatch color controls let you easily calibrate screen-to-print color matching. The V115T complies with the world's strictest standards for low emissions and energy consumption. It is backed by a three-year limited warranty on CRT and parts, one-year on labor, and is compatible with PCs, Macintosh computers, and UNIX workstations. Optiquest, Inc., 438 Cheryl Ln., Walnut, CA 91789. 1-800-843-6784. *www.optiquest.com* .

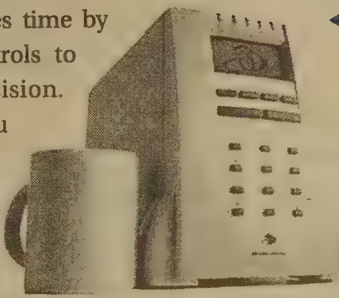
Networking Hardware

ISDN Terminal Adapter ▼

The TA120 Terminal Adapter provided an affordable solution for ISDN Internet access small office and home office professionals. It includes one data port (DB-25) for synchronous clear channel data that rates up to 64kbps, or asynchronous data that rates up to 230.4kbps. The TA120 automatically adapts to B channel protocol and utilizes dynamic bandwidth allocation with Multilink-PPP. Async to to sync PPP or Multilink MP is supported. It also features two analog (POTS) ports for connecting analog telephones, fax machines, and modems to ISDN to provide low-cost integrated telephony solution. It is available with a U-interface for direct connection to the ISDN line, or with a S/T-interface that connects the the ISDN via a NT1 line. ($325) Alpha Telecom, Inc., 7501 S. Memorial Pkwy., Ste. 212, Huntsville, AL 35802. (205)881-8743. *www.alpha-tele.com* .



◀ Interjet

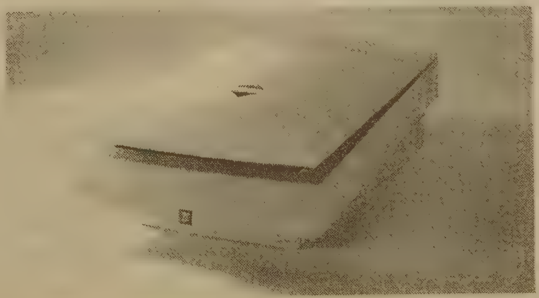


The Whistle InterJet is an all-in-one solution that provides email, Web access, and Web publishing for everyone in a small office of up to 100 people. It offers a full-featured email server, giving everyone in your office their own email address. The built-in Web server allows you to publish both internal and external Web pages. The InterJet also has a built-in firewall security to help keep people out of important data and to give you better control over who can access that data. It is easy to set-up—simply plug phone line and Ethernet LAN into the back of the InterJet. Through a Whistle-Authroized ISP, the InterJet automatically configures. It is easily upgradeable, providing bandwidth capacity from a 33.6Kbps to ISDN to full T1 speeds. InterJet can be administered from either a Windows or Macintosh computer. (Prices start at: $1995 for 25 users or less) Whistle Communications, Corp., 110 Marsh Dr., Foster City, CA 94404. (650)577-7000 or 1-888-494-4785. *info@whistle.com. www.whistle.com/*

Scanners

HP ScanJet 5100C ▼

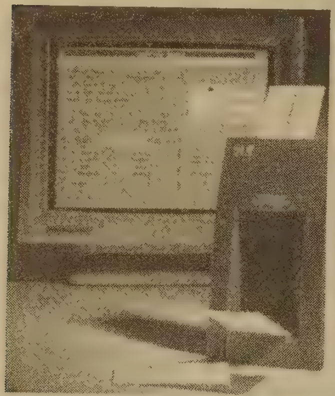
The ScanJet 5100C flatbed scanner is an affordable one-pass scanner that makes exceptional photo-quality scanning easy and automatic—even for users with no previous scanning experience. Key features of HP's Intelligent Scanning Technology include dual image scanning, automatic complex page analysis, enhanced line art, direct connectivity to popular applications, and 36-bit image processing. The ScanJet 5100C is bundled with a CD-ROM containing scanning software: HP PrecisionScan image capture software, HP Color Copy Utility with fully automated OCR software through Caere OmniPage. It also includes Adobe PhotoDeluxe 2.0 for image editing and publishing, and Caere PageKeeper Lite for paper and electronic document man-



agement. ($299) Hewlett Packard Corp. 1-800-SCANJET. *www.hp.com* .

Smart Business Card Reader ▼

The latest version of the Smart Business Card Reader (SBCR) contains AddressGrabber transfer technology, enabling users to scan business cards and transfer the information directly to the US Robotics PalmPilot PDA. The SBCE is a compact desktop scanner that reads cards in either landscape or portrait formats at speeds of up to four cards per minute. Once the card is inserted, one touch of a button and the built-in software recognizes the card data and places it into the appropriate fields in about 15 seconds. Other features allow users to add notes to the cards and search for contacts based on those notes. Users can drag-and-drop fields from a card image to a database, and use the Smart Zoom feature to highlight areas of the card to be edited. ($199) Seiko Instruments USA, Inc., 1130 Ringwood Court, San Jose, CA 91513. 1-800-688-0814 or (408)922-5800. *www.seikosmart.com* .



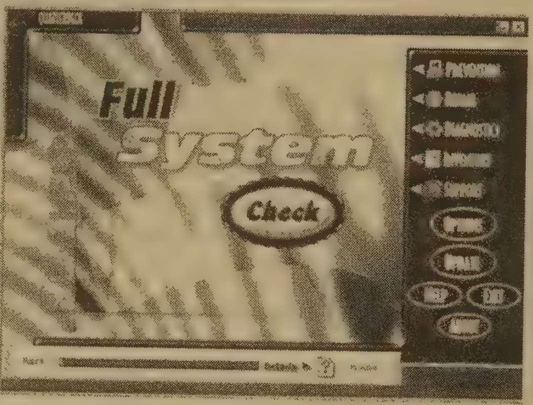
Windows Software

The Thomas Guide CD-ROM: 1998 Bay Area

The 1998 version of the Bay Area Thomas Guide CD-ROM covers Alameda, Contra Costa, Marin, San Francisco, San Mateo, and Santa Clara Counties. PC users are able to easily pinpoint a Bay Area location by typing in a street address or selecting a point of interest from a convenient index. Once the corresponding map page is displayed, users can zoom in and zoom out to view locations at various levels of detail and insert symbols to mark specific location. Maps can then be printed—in color or black and white—on high-resolution printers (300+ dpi) or copied and inserted into other software programs using the Windows copy and paste functions. Up to ten locations can be saved for future reference. The Thomas Guide CD-ROMs are updated and published on an annual basis. ($49.95) Thomas Bros. Maps, 1-800-899-6277. *www.thomas.com* .

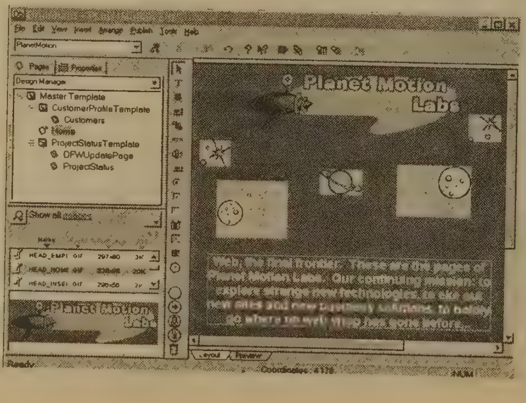
RealHelp Extra Strength ▼

RealHelp, for Windows 95, offers a complete system diagnosis and problem solver. It continuously checks for software conflicts using its ActiveSystem monitoring to spot potential problems and to automatically fix the problem. RealHelp also checks for and fixes hardware configuration conflicts. The Extra Strength version includes a one-year subscription to TuneUp.com, Quarterdeck's online service station. TuneUp profiles the PC, building a hardware and software inventory, then compares the inventory list against a list of updates, patches, and drivers on the TuneUp server. If there are updates available, the list is sent to the user, who selects what to automatically download and install. Using Change Remover, the user can undo any update. (Regular Strength, $39.95; Extra Strength, $59.95) Quarterdeck Corp., 13160 Mindanao Way, Marina del Rey, CA 90292. (310)309-3700. *www.quarterdeck.com*



Drumbeat 2.0 ▼

Drumbeat Web authoring software allows non-programmers to create highly interactive, cross-browser compatible, database-driven Web sites without needing to write code. Version 2.0 introduces Interaction Builder, which lets you create and manage Web applications using plain English-language associations. For any combination of design elements, Drumbeat determines a list of appropriate interactions. Simply point-and-click on the desired interaction and the correct HTML and script are generated automatically. In addition to Interaction Builder, Drumbeat 2.0 has a number of other features designed to simplify the process of building effective Web-based business solutions. Key among them is the Data-Driven PageSets feature that allows you to build database applications that create pages dynamically from popular servers such as the Microsoft Internet Information Server and Netscape Information Management Servers. DataForm Wizard creates WYSIWYG-editable data management pages for search, view, update, and delete. With Flexible One-Button Publishing, entire sites can be deployed to Microsoft, Netscape, and Apache servers without any manual use of FTP. The Preview Edition of Drumbeat 2.0 is available for download at no charge at *www.drumbeat.com* . ($399) Elemental Software, Inc., 5927 Priestly Dr., Ste. 101, Carlsbad, CA 92008. (760)931-5152. *www.elementalsoftware.com* .



SuperConductor

SuperConductor is a new software synthesizer and performance engine that uses new technology to shape the music naturally and intelligently, as an inspired performer does. The Hierarchical Pulse feature allows you to adjust the time/amplitude warp of the music to shape the musical meaning of the piece you are interpreting. SuperConductor uses Predictive Note Shaping technology to intelligently mold each note to create musical meaning. Its Living Vibrato uses patented global algorithms that let you make simple adjustments that create a unique natural sounding vibrato tailored to the meaning of each note in a musical line. The complete original scores of more than 300 pieces from classical masters such as Bach, Mozart, and Beethoven are included in the software. A full piece may take a couple of hours to interpret and favorite versions can be saved for future enjoyment. Only the score and rich interpretive elements are stored—the music is freshly created from these each time it is played. ($395, requires a Pentium 100 or higher and Windows 95) MicroSound International Ltd., 19181 Mesquite Ct., Sonoma, CA 95476. (707)939-1566 or 1-800-999-8344. *www.microsound.com* .

continued on page 218

FREE Windows Based Catalog Now Available

FastLink Network Products

Network Products for Less!

VISA MasterCard AMERICAN EXPRESS Cards Welcome

10 Base-T Twisted Pair Ethernet

3COM 3C509B-TP0 Single/5/20-Pk	60/283/1,049
3C509B TP&BNC/5/20-Pk	72/341/1,299
3C529B TP/ MCA/5-Pack/30Pk	230/987/5,480
3C900-TPO/5PK/20PK	94/410/1,472
INTEL EE Pro/10+ w/o Flash TP/5-Pk	57/264
EE Pro/10+ w/o Flash 20-Pk/80-Pk	956/3,630
SMC EtherEZ 10BT Single/5Pk	59/276
EtherEZ 20-Pk/50-Pk	1,020/2,359
EtherEZ Combo/5Pk/20Pk/50Pk	68/324/1,202/2,735

Fast Ethernet 10/100 MegaBit Cards

3COM 3C515 Etherlink 10/100 ISA Single/5-pk	162/770
3C515 Etherlink 10/100 ISA 20-pk	2,841
3C905TX Etherlink XL 10/100 PCI Single/5-Pk	85/455
3C905TX Etherlink XL 10/100 PCI 20pk/60pk	1,700/4,773
3C597 10/100BaseT EISA/5-Pk	246/1,187
ADAPTEC ANA-6944A/TX 100BTX PCI 4-Port	911
AsanteFAST 10/100 PC & MAC PCI/5-Pk	151/738
COMPAQ Netelligent PCI 2 port 10/100	295
INTEL EExpress Pro 10/100 PCI/5-pk	87/414
EExpress Pro 10/100 PCI 20Pk/80Pk	1,400/5,120
EExpress Pro 10/100 EISA	260
EExpress Pro 100 PCI Server card/5Pk	511/2,373
EExpress Pro 100 Plus PCI 10/100/5Pk	91/436
EExpress Pro 100 Plus PCI 10/100 20Pk	1,607
OLICOM OC-2335 MCA 10/100 Fast Ethernet Card	240
SMC 9432 PCI Single/5/20/50Pk	74/343/1,200/2,718

Fast Ethernet Hubs

3COM Office Connect TP400 4 100TX ports	204
Office Connect TP800 8 100TX	367
Office Connect TP1200 12 100TX ports	537
3COM 3C250B-TX 12 100 BASE TX Stackable Hub	1,211
12-pt Dual Speed 10/100 Hub/24 Pt	1,226/1,896
ASANTE AsanteFast 12-pt 100 BaseT Hub	1,000
Friendlynet 16 100BTX	1,016
CISCO Fasthub 16 100BTX	828
COMPAQNetelligent 1224 24 port Dual Speed Hub	1,736
HP AdvanceStack 12 100BTX/with MGMT	1,026/2,052
INTEL Express 8 port stand alone hub 100BaseTX	480
Express 10/100 Bundle(1 Hub, 10 Cards)	1,675
Express 10/100 Stackable Hub 12-pt/24-pt	1,135/1,776
MICRODYNE Century 6 Port 100BaseTX hub	364
NETGEAR FE104 4 100BTX/FE108 8 100BTX	192/385
FE508 8 100BTX Stackable	590
FE516 16 100BTX	1,034
SMC EZ Hub 100 8-pt 100BTX Hub	463
TIGERSTACK 100 12-pt 100BTX SMC5312TX	1,140
TIGERSTACK 100 24-pt 100BTX SMC5324TX	1,821

Token Ring

3COM 3C319 TokenLink Velocity Single/5-Pk	218/1,050
3C339 Tokenlink Velocity PCI TR Single/10-pk	274/2,323
IBM Turbo TR 16/4 Type1/ 3 Single	216
Turbo TR 16/4 TR PCI	296
INTEL Token Express Pro 16/4 ISA	271
MADGE Smart 16/4 ISA TR card	229
Smart 16/4 PCI TR card	288
PROTEON P1394+ Token Ring 16/4/10-Pk	218/2,129
SMC Token Ring Elite 16/4 Single/12-pack	220/2,431

PC Card/Card Bus/Parallel Port Adapters

3COM 3C589 PC Card 10BT/COMBO	137/186
3C389 Tokenlink Velocity PC Card	283
3C562D-TP PC Card Enet 33.6/Fax/5-Pk	274/1,285
3C575-TX PC Card XL 10/100/5PK	157/745
IBM PC Card Coax/TP Adapter	242/261
Turbo 16/4 TR PCMCIA2 Adapter	294
INTEL EtherExpress Pro/100 Mobile 16-BIT	150
EEPro/100 Mobile 16BIT 5PK/20PK	714/2,610
EEPro/100 Mobile 32BIT SINGLE	158
EEPro/100 Mobile 32BIT 5PK/20PK	756/2,691
XIRCOM Pocket Adapter III 10BaseT	291
Pocket ENET III COMBO(BNC & 10BaseT)	325
PC Card IIPS 10BaseT/Combo/TR	147/183/346
CREDITCARD ENET 10/100+ FLEX/56MODEM	342
PC Card Enet 33.6 Modem & Fax 10BT/Combo	279/315
Card Bus 10/100BTX (CBE-10/100BTX)	199

Ethernet Hubs/Concentrators

3COM SuperStack II Entry Hub 12/24	278/431
Office Connect TP4 3C16704 4 10BaseT	63
Office Connect 8-pt Hub TPO/TPC/TPM	127/159/397
OfficeConnect 16 TP, 1 BNC	216
SuperStack II PS Hub 40 12-pt/24-pt	502/884
SuperStack II PS Hub 50 24-pt	1,189
SuperStack II Hub 10 24-pt	660
SuperStack II 10 Mgmt Module	466
Redundant Power Supply	1,032
SMC EtherEZ 8 port TP w/ BNC	***99***
ASANTE 8-Port w/AUI&BNC/12-Ports	121/211
24-Port w/AUI	323

ADDITIONAL SAVINGS ON THESE POPULAR ITEMS

HEWLETT PACKARD

Limited time promotion on HP NetServer E45 Pentium II 266 w/ 32MB RAM, 10/100 Fast Ethernet card, & 24XCD. Only $2,384 with the purchase of memory upgrade or 4 GB or larger SCSI hard disk. Novell IntraNetWare for Small Business (5) is only $ 369 when purchased with server.

3Com

The most popular 10/100 Switch on the market just got better!

For a limited time, the 3COM SuperStack Switch 3000 12 port 10/100 switch is now only $1,900.

BAY NETWORKS CG1001E01 BayStack 12-pt	595
CG1001E02 BayStack 24-pt	982
800 8-pt /2800A 16-pt	195/572
HEWLETT PACKARD AdvStack 8-port/16-port	169/390
AdvanceStack-12-pt/24-pt	461/868
AdvanceStack Switch Module for 12-pt or 24-pt Hub	662
AdvanceStack Management Module	350
AdvanceStack w/Mgrnt Module 12-pt/24-pt	530/934

Ethernet Switches

3COM SSII SW1000 12 10BT,1 100BTX	1,656
SSII Switch 1000 24 10BT, 1 100BTX	2,318
SuperStack II Switch 3000 12-pt 10/100 Switch	1,900
SuperStack II Switch 3000 8-pt 100BTX	2,036
SuperStack II Switch 3000 5-pt 100BFX	6,022
SuperStack II Desktop Switch 24TP,1 100BTX	1,247
OfficeConnect Switch 140 4-10BT,1-100TX	745
ASANTE ReadySwitch 4 RJ45, 1 Fast Ethernet	1,253
IntraStack 6014 DSB 12 10/100 ports	2,455
BayStack 301 22 10BT, 2 100BTX	2,727
BayStack 302 8-10BT, 1-100BTX	1,772
BayStack 303 24 10BT, 1 10/100BTX	1,471
BayStack 304 12 10BT, 1 10/100BTX	996
BayStack 350T 16PT 10/100BaseTX switch	2,384
CISCO CATALYST1900 12 10BT/1 100BTX	1,230
24 TP,1-100BTX,1-100FX	2,010
CATALYST 1900 24 10BaseT,2-100BTX	1,607
HP AdvanceStack Switch 208 8-10BT,1-100BTX	780
AdvanceStack Switch 224 24-10BT, 1-100BTX	1,428
AdvanceStack 800T 4 100BTX, 4 Open	1,560
AdvanceStack 2000 6-slot chassis	1,776
AdvanceStack 2000 2 100BTX module J3191A	888
AdvanceStack 2000 4 10BT module J3102A	888
INTEL ES510T 24 PORT 10/100 Stackable Switch	3,229
ES500MTX 4 PORT 10/100 Module for 500 Switch	694
ES500MFX 2 PORT 100FX Module for 500 Switch	1,039
ES500MSI Stack interface Module to stack 2 switch	208
ES101TX 8 PORT 10/100 Switch	2,191
ES101MATX 2 PORT 10/100 TX module	1,026
NPI Nuswitch FE200TT PLUS 2 10/100 ports	375
FE200TF PLUS 1 10/100 TX & 1 10/100 FX	680
FE-210 2-100TX, 10-10BT	900
FE-106 1-100TX, 6-10BT	899
FE-224 2-100TX, 24-10BT	1,306
FE-600 + 5-100TX, 1 Open slot	833
NETGEAR SW510 8 10BT + 2 10/100BaseTX	738
SW518 16 10BT + 2 10/100BaseTX	1,109
FS102 2 10/100,+ 2 uplink	252
FS104 4 10/100 + 1 uplink	458
FS508 8 10/100 + 1 uplink	1,223
SMC EZSwitch Plus 6-10BT, 2 100BaseTX	958
TigerSwitch 8+8TX, 8 10BT+8 100BTX switch	1,670

Tape Backup Solutions

CHEYENNE ARCserve v6.1 NLM 10 Users	271
ARCserve for NW Single Server, Unlimited Users	452
ARCserve for IntranetWare for Small Bus	241
ARCserve v6.1 WRKGRP-Up to 25/Over 25	479/1,156
Changer Option for ARCserve/Push Agent	423/300
Windows NT Agent for ARCserve	330
NetWare Server Suite(Arcserve, Faxserve, Inoculan)	615
Open File Agent for NetWare	426
Disaster Recovery Option for NetWare	324
SEAGATE Backup Exec 1 Server 25 Users	329
Backup Exec Single Server	462
NetWare Enterprise NLM	922
Backup Exec Autoloader Option	393
Disaster Recovery Option for NetWare	327
STAC Replica for NetWare/Multi-Server Option	419/713
EXABYTE EXB-8700LT 8mm 7-14GB drive only	726
EXB-8700SW 8mm 7-14GB w/ Server software	1,002
HP C1554 DDS3 4mm 12-24GB DAT Int/Ext	1,145/1,245
C5648A 72-144GB DDS3 autoloader	2,744
C1559 Surestor Ext 72-144GB DDS3 autoloader	3,607
C1536 DDS 4mm 2-4GB DAT Int/Ext	635/735
C1599 DDS2 4mm 4-8GB DAT Int/Ext	840/940
C1553 24-48GB Autoloader Int/Ext	2,230/2,530
SONY SDT-9000 4mm DDS3 24GB Int/Ext	1,372/1,417
SDT-9000 w/Arcserve Enterprise Int/Ext	2,329/2,432
TECMAR WangDAT 3900 DDS3 12-24 GB DAT Int	1,115
WangDAT 3900 DDS3 12-24 GB DAT Ext	1,240
TS420C-D01 Travan 4-8GB internal	400
TS420C-D12 Travan 4-8GB internal	500

Remote Access

3COM Office Connect Boundary Router 3C8841A	1,244
Office Connect Remote 510 ENET,ISDN	586
Office Connect Remote 520U ENET, ISDN, POTS	733
Office Connect Remote 531U ENET, ISDN, ASYNC	1,098
ARTISOFT InSync Modemshare 1/2/4/8Pt.	108/187/348/592
CISCO 2501 1 ENET, dual serial router (software req)	1,906
2514 2 ENET, dual serial router (software req)	2,340
EMULEX Connect Plus 2 ports/8 Ports	582/2,262
NOVELL NetWare Connect 2	309
NetWare Connect 8/32 pts	1041/3,405
NetWare Connect 2-port w/Modem and Serial I/O	845
NetWare Connect 8-port w/Modem and Serial I/O	2,912
SHIVA Netmodem/E 28.8	871
AccessPort/D Enet ISDN router	690
Lanrover/E Plus w/2 Async ports/4 Async	1,334/2,532
Lanrover/E Plus w/2 v.34/8 PT w/4 v.34	1,771/3,320
Lanrover/E Async 8 Async/8 v.34 modems	2,810/4,528
DIGI INTERNATIONAL Digi 2-Pt/4-Pt/8-Pt	200/455/588
Acceleport 8EM w/RISC CPU, DB25 ISA/PCI	673/673

WAN Connectivity

3COM Impact IQ 3C882	216
ASCEND Pipeline 15 w/ 2 POTS ports NT1	325
Pipeline 25-FX Bridging	457
Pipeline 50 w/NT1, COMP, IPX,IP/ with Firewall	604/946
Pipeline 50 w/ 1 Lease 56 & 1 SW56	1,196
Pipeline 75 Multi IPX, IP, 2 Analog/ with Firewall	679/1,026
Pipeline 130 w/FT1,T1,ISDN	1,386
Pipeline 130 ISDN & L56/SW & L56	1,342/1,412
Max 200 Plus w/4 BRI Cards	3,043
CISCO 762 ISDN Rtr/Cisco 766 w/2 Analog Pts	544/668
Cisco 772 4-10BT/Cisco 776 4-10BT, 2 Analog	622/746
HP AdvanceStack Internet Router Card J3138A	2,773
SHIVA Lanrover/E Plus 1-BRI ST, v.34, 3 CHAN	1,918
Lanrover/E Plus 2-BRI ST, 4 Channels, Enet	2,075
Lanrover/E Plus 4-BRI ST, 8 Channels, Enet	3,929
US ROBOTICS Sportster ISDN adapter	224
DataBurst Ext. Parallel Port ISDN w/NT1	275
Paradyne 7610 56/64K DDS CSU for Frame Relay	336
3150 T-1 Frame Relay CSU	1,157
ADC KENTROX D-SERV FrameRelay 56/64CSU/DSU	347
D-SERV FrameRelay up to T1 CSU/DSU	978

Internet Solutions

3COM OfficeConnect Gateway 535 ISDN IPX to IP	1,326
BAY NETWORKS Instant Internet 100 1 ENET/ISDN	899
Instant Internet 100 w/ 1 Enet, 33.6 modem	699
Instant Internet 100 w/ 1 Enet, 56K FLEX modem	899
Instant Internet 100 w/ 1 Enet, 56K X2 modem	899
Instant Internet 20 Usrs 1 Enet w/33.6k	1,896
Instant Internet 20 User, 2 Enet w/ 33.6 modem	2,086
Instant Internet 20 Users, 1 Enet w/ ISDN	2,200
Instant Internet 20 Users, 2 Enet w/ISDN	2,403
Instant Internet 10-User Add-On Pack/30 Users	379/2,734
100 Users w/ Dual-Enet & DDS support	3,657
100 Users w/ Dual-Enet & T1 CSU/DSU	3,029
CISCO Microweb Server	907
FARALLON Netopia Internet Router IP/Appletalk	1,061
Netopia Internet Rtr TCP/IP 12-Users/.Unlimited	752/874
RAMP Networks WebRamp Entre	672
WebRamp IP ISDN Router/IPX Router	598/1,169
WebRamp M3 IP Rounter w/ 3 Serial ports	342

Network Printing Solutions

CASTELLE Office Connect Print Server (2P)	307
LANpress 3P/100 (10/100BTX)	374
HEWLETT PACKARD JetDirect 150X 1 port, IPX	172
JetDirect EIO 10/100 Print Server J3113A	344
JetDirect 10BT MIO	339
JetDirect Combo MIO BNC/10BT	400
JetDirect Card for 10/100Base-TX J2556B	407
JetDirect Ethernet EX Plus/ EX Plus 3	306/420
JetDirect Token Ring EX/EX Plus3	567/682
INTEL Netport EL Ethernet/Token Ring	422/588
NetportExpress XL for Ethernet/TR	415/565
NetportExpress Pro 10BT Int(MIO)/3 Pack	299/747
NetportExpress Pro 100 10/100BTX 1P/3Pack	273/739
NetportExpress Pro 100 10/100BTX 2P/1S/3Pk	390/1,068

Network Fax Solutions

3COM Office Connect Fax Server (1L)	1,277
CASTELLE FaxPress 1500 1-Line/2-Line	1,970/2,365
Faxpress 3000 2-line/FaxPress 3000 4-line	2,948/3,574
Faxpress 3500 2-line/FaxPress 3500 4-line	3,434/4,088
CHEYENNE FaxServe NLM 5/10/25	393/717/1,177
FaxServe NLM 50/100/250	1,816/2,533/3,801
FaxServe for WinNT 5/10/25/50 Users	240/421/846/1,331
LANSOURCE FAXport 5 Users/10 Users	273/406
FAXport 25/50/100	676/999/1,300
FAXport 4 modem add-on	204
FAXport 5 User add-on/Unlimited Users	204/1,900
ZOOM Multiline 8 slot w/4 fax modems, hot swap	937
SYMANTEC Net Satisfaxtion 25/1000 users	742/990

Uninterruptible Power Supplies

APC Back-UPS 400/450/600	151/185/256
Back-UPS Pro 420/650/1000/1400	251/310/404/521
Powerchute Plus for Novell/Unix/Windows NT	99/149/99
Smart-UPS 700NET/1000NET/1400NET	389/540/671
Smart-UPS 2200NET/3000NET	1,067/1,788
Matrix 3000/5000/Smartcell	3,720/4,616/537
SNMP Agent for Novell/SNMP Mgr for Netware	125/145

Cable Testers & Supplies

ALLENTEL AT680RJ45 Crimper	50
AT10K Crimper Kit w/5 DIES & case	259
RJ45 10 BaseT Connectors (100 pak)	40
10Base-T Cable (1000' min) LV3/LV 5	100/200
FLUKE LAN CableMeter 620/CableMeter 650	728/1,760
MICROTEST Cable Tester	300
Penta Scanner w/Super Injector	3,019

E-Mail

MS Exchange Server Single w/ 5/10/25	1,014/1,368/2,160
Exchange Server Enterprise w/25/50 Clients	4,099/5,429
Exchange Add'l Clients 5/20	366/1,160
Exchange Internet Mail Connector	498

Network Management

3COM Transcend Workgroup Mgr for Windows	461
Transcend Enterprise Mgr for Windows	2,453
HP Openview Pro. Suite	1,037
INTEL LanDesk Mgmt Suite 5/10/100 users	522/696/4,240
LanDesk Server Manager Pro	1,232
NOVELL LANalyzer for Windows	1,021
NetWare LANalyzer Agent Multi-Segment	1,178

Network Utilities

CHEYENNE AuditWare for NDS 100/Enterprise	460/851
Directory Mgmt. Combo/Enterprise	850/1,951
InocuLAN Wrkgrp/1Svr-Unlimited	301/648
InocuLAN 5 Svr-Unlimited Users	2,363
InocuLAN Option v4.0 for AS 6	313
INTEL LanDesk Virus Protect Single Svr NW&NT	329
Single Svr w/ unlimited clients	1,055
Client Access License for LanDesk Virus Prot 5/25	94/482
ONTRACK Data Recovery NetWare	411
SEAGATE Prepare! Disaster Recovery SW	459

Server Mirroring

VINCA Campus Standby Server Software for NW	2,955
Standby Server NetWare/Windows NT	2,954/2,586
Entry StandBy Server/SnapShot Svr for NW	985/757
Standby Server Many-To-One	5,172

Windows NT Solutions

3COM Transcend Workgroup Mgr for NT	463
Transcend Enterprise Manager	2,353
CHEYENNE Arcserve for Windows NT v6.5, Single Svr.	420
Arcserve for Windows NT v6.5, Enterprise Edition	840
Arcserve for NT NetWare Agent	438
Arcserve Changer Option for Windows NT	365
Arcserve Disaster Recovery Option for NT	271
InocuLAN for Windows NT 1 Svr	651
Open File Agent for Windows NT	421
Protection Suite for Exch Single/Enterprise	1,183/1,600
EXECUTIVE SOFTWARE Diskeeper/5-Pack	266/1,089
INTEL Landesk Workgroup Mgr 25	1,615
LANDesk Virus Protect NT	1,028
MICROSOFT Windows NT Workstation	317
Windows NT Server w/5/10 Clients	812/1,128
Windows NT Client Single/20 Clients	34/658
SMS System Mgmt Server w/5 Clients	943
Proxy Server for NT4	995
SEAGATE Backup Exec for NT 1 Svr/Ent	493/864
Backup Exec Autoloader for NT	434
Open File Manager for NT	425
STAC Replica for Windows NT	419

Servers

HP Netserver E40 PPRO 200, 32MB,8XCD	1,856
Netserver E45 PENTIUM2/233, 32MB,SCSI,24X	2,105
Netserver E45 PENTIUM2/233, 32MB,4GB,24X	2,499

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MultiMedia & BEYOND

Gulch GOSSIP

by Jonathan E.

Pretty Good Piracy

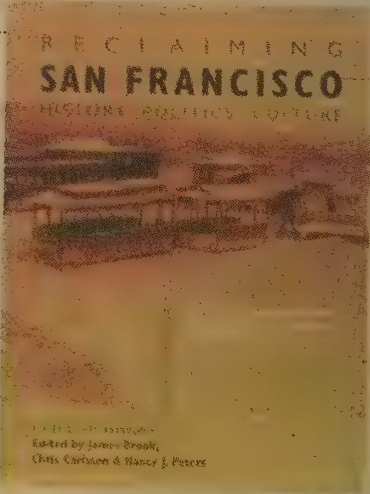
This information gleaned from a recent issue of **The Economist:** The illegal pirated software easily available in Hong Kong often fixes the bugs in the legal versions.

Now here's an out-of-the-box idea: Why don't software publishers avail themselves of this almost free service? Why bother to pay your own engineers and programmers to do the work when you can just pop into Hong Kong's "**298**" or "**188**" malls or the **Golden Shopping Arcade** and pick up a fixed, or at least improved, version of your own software for a mere $3?

The publisher could then simply pirate the pirates and sell the better version of the product without the expense and nuisance of hiring its own employees or even a contract programmer. This is how fortunes are really made—or at least increased! Perhaps this could become yet another industry standard in an industry famous for its standards—low, high and lack of.

I wouldn't expect programmers themselves to like this idea much, but for technical types there seems to be plenty of work to go around for the foreseeable future anyway. Perhaps the **Software Publishers Association** should add a workshop on the topic at its Spring Symposium, held March 21–24 at the San Jose Convention Center. Keep checking *www.spa.org* to find out whether this radical new idea has found a home.

Shaping San Francisco



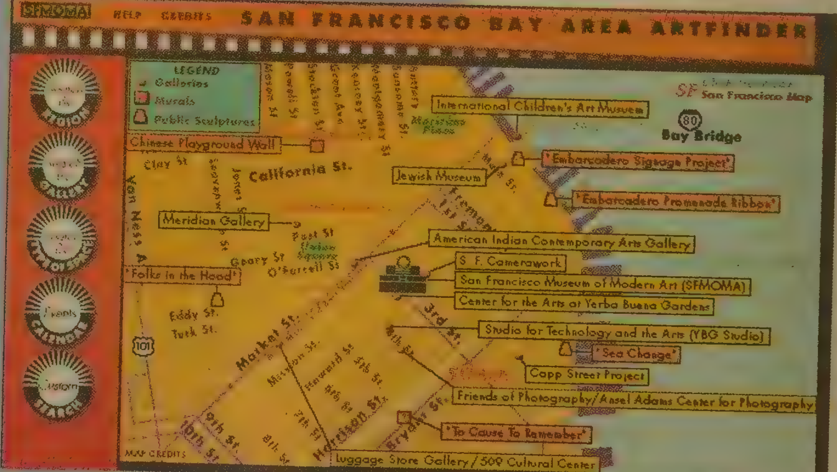
SHAPING SAN FRANCISCO, ONE OF THE MORE AMBITIOUS, wide ranging, and generally worthwhile multimedia projects for quite awhile, is now available for viewing on a screen near you. I intend to give it the full treatment in a future Multimedia 101 column, so consider this snippet of its story to be only a teaser—but don't let that stop you from buying it now!

More than just a CD-ROM, more than just a companion book, *Shaping San Francisco* is really a collaborative and ongoing grassroots community history project. Its first manifestation is the *Shaping San Francisco* CD-ROM, available both for purchase and as a kiosk installation in the San Francisco Public Library, and a book, *Reclaiming San Francisco—History, Politics, Culture*, published by **City Lights.** The story of how all this came together is, not surprisingly, not that of the typical industry start-up, but is quite a testament to the way the initial promise of multimedia production and digital distribution did not entirely fall only on the stony ground of cybermalls or the mushy mud of personal home pages.

The story will be told but don't wait for me! For your own look at portions of *Shaping San Francisco*, check the brand new Web site at

ArtFinder

THE **SAN FRANCISCO MUSEUM OF MODERN ART** HAS COMPLETELY REVISED and updated its **Bay Area ArtFinder** from its original kiosk version to a Web presence. Offering the ability to search by location, type of space, and several other criteria, the ArtFinder provides a guide to over sixty alternative and artist-run spaces, community art centers, and college galleries throughout the Bay Area. So if you want to check out the grassroots visual arts scene—some of which eventually makes it into the big museums—if you want to be leading edge in the real art world as well as in cyberspace, here's your chance. You'll find the site at *www.sfmoma.org/artfinder /Default.htm* .

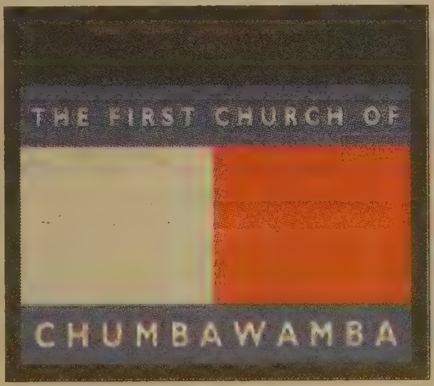


www.shapingsf.org. To see the whole thing, order the Windows CD-ROM for $35, the book for $17.95, or both together for $50 from Cloverleaf Multimedia Productions, 1095 Market St., Ste. 21, San Francisco, CA 94103. Please add $5 shipping and 8.5% tax if you're in California. Call (415)626-2060 for further info or email *cloverleaf@igc.org* . It's a project of the **Bay Area Center for Art and Technology**, a 501(c)(3) tax exempt organization, so if you're feeling flush pass a little extra on—or you can get involved first hand by volunteering time.

Bad Apples

GULCH GOSSIP WAS MOST AMUSED TO hear of **Apple**'s use, at the **Macworld** keynote, of the hit song "Tubthumping" by lefty north-of-England musicmakers **Chumbawamba**. Certainly, it's a catchy little ditty and superficially its refrain of "I get knocked down, but I get up again, you're never going to keep me down" might sound appropriate to Apple's successful struggle to turn a profit.

However, rather than being about the plucky little corporation that could, the song is actually about a drunken idiot indulging in "a whisky drink, a vodka drink, a lager drink, a cider drink" who is too pissed, in the British sense of the word, to know that the dignified thing to do would be to just lie down and be quiet. Not quite the message Apple wished to convey, I'm sure.



For more insight into Chumbawamba's distinctly unconsumerist and uncapitalistic anticorporate message, check the Web site at *www.chumba.com* or just buy the album and read the complete lyrics! Intellectual property freaks might be interested to note that Chumbawamba could not get clearances for all the quotes it wished to use in the printed booklet and so, in the comparative safety of cyberspace, the Web site just goes ahead and flagrantly reproduces the words of a wide range of malcontents.

Gulch Gossip was thus absolutely delighted to find the following few words spoken by a loser character in **Bruce Sterling**'s most excellent novel, ***Holy Fire***: "I don't have to steal to survive. I'm a thief because I *think differently*."

Perhaps Sterling anticipated Apple's rather lame campaign, because a few pages later it is revealed that the story takes place in a time when "advertising had been outlawed worldwide." Even the mere suggestion of advertising is considered "very daring."

Regular readers will no doubt grok that Gulch Gossip heartily approves of *Holy Fire* and recommends it without reservation. It is often said that artists foresee the future more clearly than academics or business types. And so it is that in *Holy Fire*, Mr. Sterling presents a fictional treatment of the world one hundred years from now with more detail and light and shade than the more factual books discussed in this month's **Multimedia 101** column. Mr. Sterling's vision also projects a somewhat acerbic but bracing attitude towards certain aspects of today's technology-obsessed society that should generally be further illuminated rather than left in the shadows.

Before Gulch Gossip gets crucified by hardcore Apple loyalists, it should be pointed out that regardless of the above, there is no material object that arouses Gulch Gossip's technolust more than the new **PowerBook G3**. Although in a pinch either a G3 desktop or mini-tower system would do and, in fact, Gulch Gossip would even settle for just about any old PowerBook 3400. If Gulch Gossip thought differently enough, more along **Steve Jobs**' early path, Gulch Gossip would just go out and steal a G3. Is there still a difference between theft of intellectual property and material objects?

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Cooking With Moe

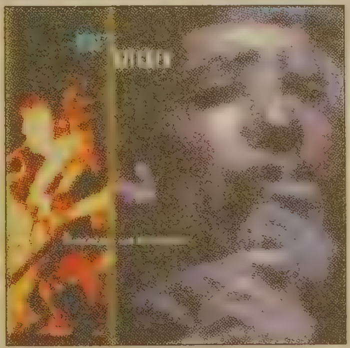
I'M ALWAYS CURIOUS ABOUT WHAT PROGRAMMERS AND TECHIES are up to when they're away from the screen. So, when I met **Chris Schardt**, late one night at an industry do, resplendent in his purple suit, I was pleased to learn that, besides writing code for **Headspace**, **Thomas Dolby**'s company providing innovative Internet audio capabilities with the **Beatnik** plug-in, he's the vocalist and keyboardist for **Moe's Kitchen**.

Well, I'd never heard of Moe's Kitchen either, but Chris gave me a CD and has sent me regular email ever since about what the band is up to. And Moe's Kitchen has been busy gigging at quite a lot of clubs around the Bay Area—not that I've ever actually dragged myself out to catch the band.

The truth is that I'm sick near to death of nightclubs and the CD, **Burning Underwater**, is not quite enough to my taste to get me out the door of my house and in the door of one of those clubs. Still, if funky acid jazz is to your taste, you'd probably find that Moe's Kitchen would give you a fine evening of entertainment and dancing and maybe more.

Most of the material is original, although Chris allows that they'll usually do a couple of covers of songs by such all-time greats as **Al Green** and **James Brown**. He claims early **Brand New Heavies** as a prime influence, along with **Steely Dan,** and a mix of those two is an accurate nutshell description of both the sound and the songwriting on the first CD.

It may not be quite to my taste, but *Burning Underwater* is by no means a bad release. It has actually grown on me with repeated listening and some of the tunes are quite catchy. The horn arrangements are particularly good, and the songwriting is sophisticated.



But that's the *last* album. Chris reports that, "Work resumed on the new Moe's Kitchen actual-musicians-in-expensive-studio CD in January. There is no schedule except to spend as much time as it takes to get the best performances, mixed in the best way we can. All of us are quite excited. Into this CD will be poured the time, sweat, and love of three and a half years of writing, rehearsing, and performing." He is hoping, however, for a release sometime this spring.

To check on current gigs coming up, or when the new album will be actually available, check the band's site at *www.moeskitchen.com* . To book the band for your club or lucrative corporate date, email *christopher@moeskitchen.com* . You know, one day (or night), I really will get out to see Moe's Kitchen for myself—the album is growing yet more on me as I write.

GULCH GOSSIP *continued...*

Not Just Dogging Around

THE ETHNONEUROTRANCE SOUND OF **Dogon** gets a second airing on **The Sirius Expeditions**. This time **Paul Godwin** of **New Dog Studios** and his partner from Venezuela, **Miguel Noya**, add both a few more beats and a more orchestral feel, claiming that, "We know the sound of the future."

There's also a cover of a vintage **Pink Floyd** tune, "Fat Old Sun." It turns out that Dogon also make the sound of now, enough so at least that Dogon received a **Bammie** nomination in the category of Outstanding Dance/Electronic Artist. I'd hardly call anything that I've heard from Dogon "dance," but that doesn't mean that you couldn't have fun trying.

The first album, ***notdunjusta***, had the manipulated vocal sample, "It was notdunjusta to make some business or something," while on *The Sirius Expeditions*, you'll hear someone who sounds like an old jazzman say, "We're not commercial, we came to grips with ourselves with that. We're not commercial."

Dance, not dance, now, then, or in the future, commercial or not, Dogon is worth hearing for yourself. You can order it over the Web at *www.backroadsmusic.com/ ordering/index.shtml* , use an old-fashioned phone and call **Backroads** at 1-800-767-4748, or find it in record stores that have a clue. For more general info, check the **New Dog** site at *www.newdog.com* or email Paul at *godwin@sirius.com* .

sunkist

FRESH FROM A DAY JOB REVIEWING PORNO Web sites for *skinfinder.com* , that stylistic renegade **E. Blake Davis**, once of **Papa's Culture**, together with *his* Venezuelan partner, **Rob Vlack**, founding member of **Los Prowler** and currently with **Pothole**, bursts forth upon the world's stage once more with a new musical offering, **sunkist**, a self-proclaimed "pop vocal group and production/remix team with vague psychedelic pretensions."

The sound is "the new oceanic-pop sound," somewhere between classic pop, contemporary, electronic-pulsations and manipulations, and guitar skronching provided by **Will Bernard** and **David Immergluck**. It's not surf, it's not warmed over **Beach Boys**, it's certainly not the **Spice Girls**; it's sunkist, it's like nothing else on the planet!

As E. Blake says, "We're entirely disinterested in any 'retro' activity or pursuing any contemporary scenes." He further claims that, "Each song is an evocative rumination on memory, dementia, the self, crime, identity, loss." Ah, yes! The issues that permeate our times once again!

From the EP, I particularly like "Satellites," a song in which E. Blake celebrates and mourns the satellites being down, leaving us nowhere to go, and suggests smashing our radios and taking a walk around the old neighborhood. A close second favorite moment comes in "Never Let You Pass" when E. Blake, in a funky section, excitedly exclaims, "This is absolutely the greatest record we've ever made!"

It might be the greatest record they've ever made but it's not on any label. It's all done virtually. "Sunkist does not pretend to be a label," E. Blake explains. "Personally, I have been dropped from **Island Records**, **Elektra Records**, and, apparently, **Mod Lang** records. If I started my own label, what if it didn't sell? I'm sorry, but I don't have the heart to drop myself."

Well, we wouldn't want E. Blake to have to go through that agony, would we? Although not quite ready for a Web site and with no label, sunkist can be physically found in finely appointed record stores like **Amoeba** and **Mod Lang**, and hopefully **Tower** by the time you read this. Otherwise you can email E. Blake at *bbbd@sirius.com* to get your hands on this little musical treasure, or to request a remix of your latest track in the inimitable sunkist style.

Also look for the sunkist remix of **Jai Uttal**'s "**Guru Bramha**" from his latest album, **Shiva Station**, available in stores soon.

Theta Gets The Royal Treatment

WELL, NOT EXACTLY, BUT **CITY OF TRIBES**—IN combination with its sister label **ZoëMagik**—continues to push the boundaries of electronic, ambient and ethno-trance music on a pair of interesting releases: ***The Event Horizon—Theta*** and ***The Royal Treatment***.

Theta is the fourth in the Event Horizon series, and continues the high standards of the previous titles. Almost all the tracks are previously unreleased, some by new artists and some by artists who have previously stayed mostly in the background, such as **Simon Tassano,** or been side projects, such as **Stillpoint**. There's an eerie track from **Incierto Insecto**, a Venezuelan group of musicians including Dogon's Miguel Noya, with an upcoming release on New Dog. **Ali Khan** serves up a thumping Indian-flavored piece in

continued on page 180

Picture Hardcopy

MORE LEADING-EDGE CONTEMPORARY VISUAL ARTS CAN BE SEEN UP CLOSE AND PERSONAL AT **HARDCOPY**, an exhibition of work from students exploring innovative digital printing at the **Center for Digital Media** in the **San Francisco Art Institute**. The press release claims, "While initially appearing diverse in nature, on closer inspection issues of identity, gender, place and mythology simultaneously permeate the work." Ah, yes! The issues that permeate our times!

The work is all digitally produced, but comes from a variety of sources, photography, printmaking, painting, video, and, even my favorite, text! Student artists include **Kalim Armstrong, Kim Elphinstone, Will Eskridge, Daniel Farnan, Jacqueline Gilbert, Jeffrey Wagener,** and **Naomi White**. Hardcopy faculty **Paul Klein** also has work up.

The show runs until Saturday, March 7 and is at **Picture**, the gallery extension of **City Picture Frame** at 524 Third St., San Francisco, only a few steps from the hallowed grass oval of **South Park**. Further info from (415)543-4124.

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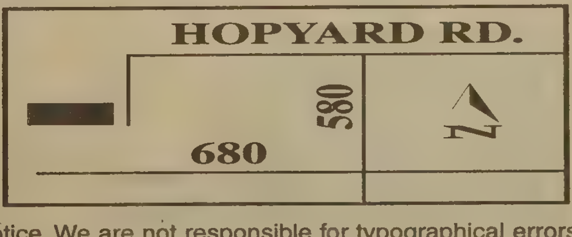

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GULCH GOSSIP

continued from page 176

the same vein as some of the interesting new work coming out of the recent electronic bhangra and Asian scene in England. There's a live **Trance Mission** track from the new line-up, and another from **Ambient Temple of I*magi*nation**, also with **Stephen Kent**. All around, *Theta* is another excellent snapshot of the vibrant San Francisco ethnoelectroambient scene, this time extending tendrils out to a few other locales.

The Royal Treatment is a collection of ravey-house dance remixes of tracks by various City of Tribes artists, such as **Beasts of Paradise, Aether, Ring, Stellamara**, and Trance Mission. SF DJ **The Baroness**, aka **Charlotte Kauffman,** gathered together a selection of San Francisco DJs and remixers, including both of the **Hardkiss** brothers, Gavin and Scott; **Kevin Carnes** of the **Broun Fellinis** with his post modern digital drum circle, **9000 Drummers; Ms T;** and **Danio & Joshio, The Duke & Duchess of Disco**.

Each took an ethno-electro-ambient track and boosted the electro quotient while reducing the ethno-ambient qualities. The Baroness then sequenced the whole lot together into a funky mix-up. If you're the quiet purist type, you'll probably hate it. By and large there isn't much left of the original tracks except vocal fragments. I barely recognized any of the tunes on the first listen.

Most of the mystery and delicacy have been replaced by sturdy, made-for-the-purpose dance rhythms. They are, however, pretty fine and bouncy dance rhythms, some with a fairly radical, experimental edge, and quite excellent if you're in that particular mood. In many cases, the original tracks serve to mellow out the tendency toward harshness that electronic dance tracks so often exhibit—so, if you're a bit of a neophyte of this style but wish to explore, *The Royal Treatment* is highly recommended as a relatively gentle way in.

Beyond that, it's a fascinating document of what can happen when seemingly opposite styles meet. Personally, I'd like the match to be a little more even; in my opinion (or for my taste), the electro power generally over-dominates the acoustic nature by a shade or two. More subtle hands on the remixing boards would have sometimes produced an ultimately more interesting and longer-lasting result. But that's the style, and, as it is, *The Royal Treatment* is very late '90s San Francisco, rather than as timeless as the original tracks. As always, you can catch up with City of Tribes on its Web site, *www.cot.com* . ■

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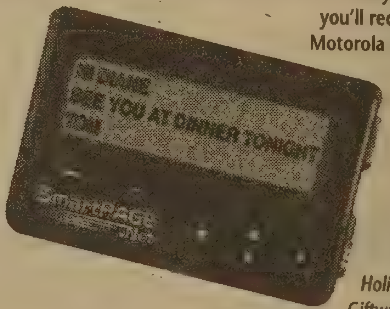

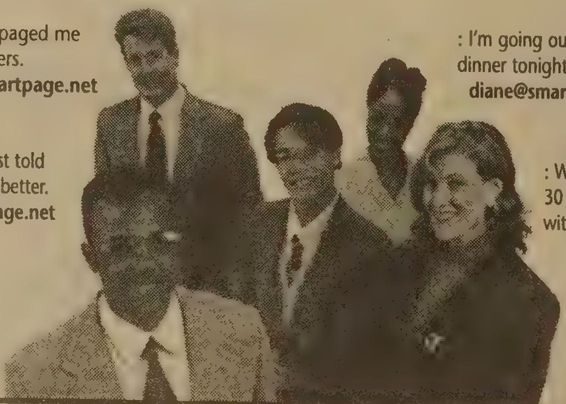

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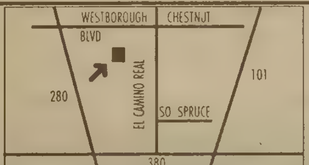

(Inside Fairway Plaza)

MULTIMEDIA 101

Books, Books, Books

The Writing Is Not On The Wall

Whatever else the digital revolution has been good for so far, it's certainly been stimulating for the production of good old-fashioned books about itself.

There's something ironic in this; I recall that in 1993 the mood was that all the manifestations of the new digital interactive multimedia were going to render all the other old media almost instantly obsolete. Well, those were giddy days indeed! Now, it's quite clear that some messages are most definitely better served by particular media, old as they may be.

growing up digital
The Rise of the Net Generation
DON TAPSCOTT
Author of the International Bestseller The Digital Economy
FROM MYST TO RIVEN
INSPIRATIONS
DK
Multimedia
The complete guide to CD-ROMs, the Internet, the World Wide Web, virtual reality, 3-D games, & the information superhighway

Messages that require more time than an hour or so to be fully delivered are better served in books. Messages that you might want to carry around with you and consult at odd moments are generally more convenient in printed and bound form, although laptops might fit the bill for some. Messages that are based on a lot of words seem to somehow be more comfortable within the covers of a book, certainly they're easier to read. Books currently have some economic advantages over electronic forms, although one would be foolish to deny that electronic forms have some media abilities that books do not.

There's something nice about the quality of frozen time that books embody. The message is right there, immobile; it's done wriggling around for awhile. There's time to pause and reflect. In fact, in these stormy media times, that's one of the things I like best about books. They offer a chance to haul out of the primaily electronic floods of press releases, email, magazines, news, the constant battering of wave after wave of really urgent, vital information that could change my life, change the world—but that is too often totally undigested, raw, self-interested, of the moment, and useless. Frequently, it's little more than sewage. Books offer a focus that is sorely absent from much day-to-day media, an absorption that provides a buffer zone.

Books about new media are an oxymoron to some, but there are times when it's just too damn tiring to swim in those tumultuous seas. It's time to bask on the rocks, to observe the endless far-off swells, to admire the spray thrown up by what breakers make it to land. The following are books that have some use in the contemplation of digital media, its practice and its implications.

MULTIMEDIA—THE COMPLETE GUIDE

DK Publishing, producers of *Multimedia—The Complete Guide*, are innovative modern information providers par excellence. Their graphic house-style is instantly recognizable, and immediately draws one into a deeper understanding of the subject matter. Books for both children and adults are their primary medium,

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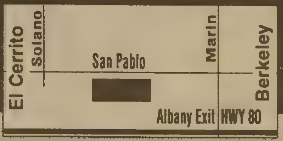

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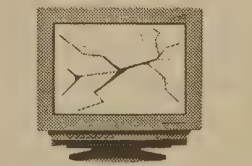

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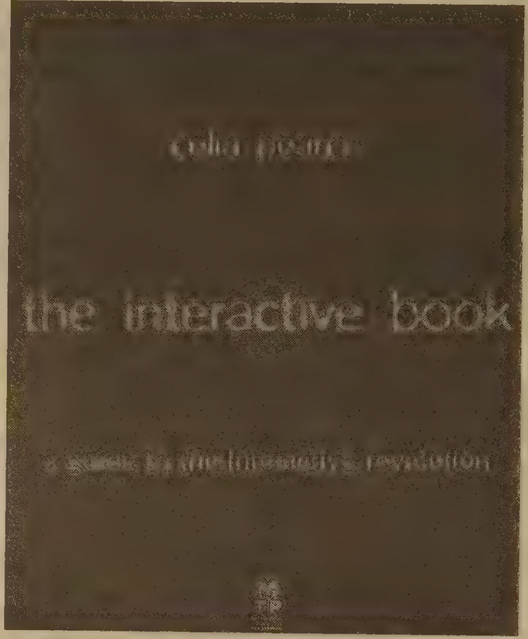
but they also have a number of highly praised CD-ROM and video titles, often developed in conjunction with a book, as well as private Webzines for purchasers of particular CD-ROM titles. *Multimedia—The Complete Guide* is, however, a stand-alone book.

Being a rather elaborately produced book and also being published in 1996, *Multimedia—The Complete Guide* is not absolutely current with today's titles or the state of some of today's hardware. However, it is still a really good guide to the basic concepts behind digital media, and suitable for children who aren't already immersed in it, or who want to know what goes on behind the scenes. Adults who are trying to catch up with their offspring or who are still wondering what multimedia is all about, will also find this book extremely useful in unraveling the mysteries of little shiny discs and their contents.

Since this book was published, the Web has rampaged all over the digital media landscape. In particular, the word "interactive" has extended its meaning from simple "user clicking and computer responding" to "users communicating with other users." *Multimedia—The Complete Guide* was certainly looking ahead when published and takes note of these developments on its time horizon, but the overall emphasis is on CD-ROMs, with an overview of basic digital media techniques of sound, graphics, animation, and video. However, it also addresses some of the general theory and impetus behind the interactive movement, particularly in the fields of education and general information availability.

In its then-current outlook, the book still provides value today, with both sobering and amusing opportunities to reflect upon some of the projected successes that have since become failures, and some predictions that remain pie-in-the-sky. And that's why even professionals and adepts who already know everything about multimedia should keep this book on their bookshelves. It's a reminder that the media landscape can change awesomely fast, but that some underlying principles remain in place.

DK Publishing, in the true style of today's media and information providers, has also repurposed some of its assets from *Multimedia—The Complete Guide* into a slimmer and more up-to-date pocket guide, *101 Essential Tips—Exploring Multimedia.* Perhaps thought up by the marketing department, the booklet still contains such valuable tips as, "The competitive nature of many computer games means that they can have an addictive, compulsive effect. Ensure that you do not sit in front of the computer screen for extended periods without taking regular breaks." There's also a teaser that, "Many leading games companies use the World Wide Web to test their latest games, from chess to quizzes to adventure games, providing a rich source of online games for Internet users."



The Interactive Book succeeds both as a document of one individual's ride through the bumpy rapids of the new media industry and as a manifesto of what that industry should attempt.

Unfortunately, there's no tip on how to search for such experiences.

Perhaps this one's for impulse point-of-sale purchase.

FROM MYST TO RIVEN

If you read this column in our January issue, you'll know that *Riven* sets a new graphics standard for computer games just as *Myst* did in its time. (If you missed the column, you can still read it on our Web site at *www.microtimes.com/174/mm101.html* .) If you'd like a lavishly illustrated book-length explanation of how *Riven* achieved that success, *From Myst To Riven* is for you.

Beyond simply detailing the technical processes, author Richard Kadrey illuminates the entire creative and collaborative journey that the Miller brothers and Cyan undertook between the completion of *Myst* and the final delivery of *Riven.* It's a fascinating story, and Kadrey investigates all its twists and turns much as one must do to successfully unravel the mysteries behind the *Riven* world of the D'Ni.

Perhaps the most reassuring (but hardly surprising) thing to learn is that the Millers really had no idea how difficult the task they set themselves was. Initial estimates were that *Riven* would take two years to complete. Eventually, due to both various technical upgrades and changes of hardware and software and, more importantly, the creative demands of the story, it took four years.

Kadrey ably explains the problems faced and the various solutions and processes used to overcome them. He must have had remarkable access, because the story is told in great detail, both in his own words and with generous quotes from members of the fairly large team that eventually worked on the production.

Beyond his excellent descriptions of various technical steps required, Kadrey does a superb job of discussing the more subtle emotional issues behind why *Riven* works well. He partially does this by referring to the plot itself, but beyond that he provides real depth by focusing on the reasons why the Millers and their crew made the artistic decisions they made. This insight has much to offer anyone with a desire to make their own interactive world.

Kadrey's words are supported by generous illustrations, ranging from original hand-drawn sketches of concepts through to screenshots. It's real eye candy, but nutritious too. On the more cerebral level, much of the back story is explained; there's also background material such as a discussion of the D'Ni writing system and its grammar.

It looks a bit like a coffee-table book, but all told *From Myst To Riven* is near-essential reading for any *Riven* fan, for wannabe developers desiring to learn a few tricks of the trade, or for actual developers who appreciate the artistry of others.

THE INTERACTIVE BOOK

Celia Pearce, author of *The Interactive Book—A Guide to the Interactive Revolution,* is perhaps

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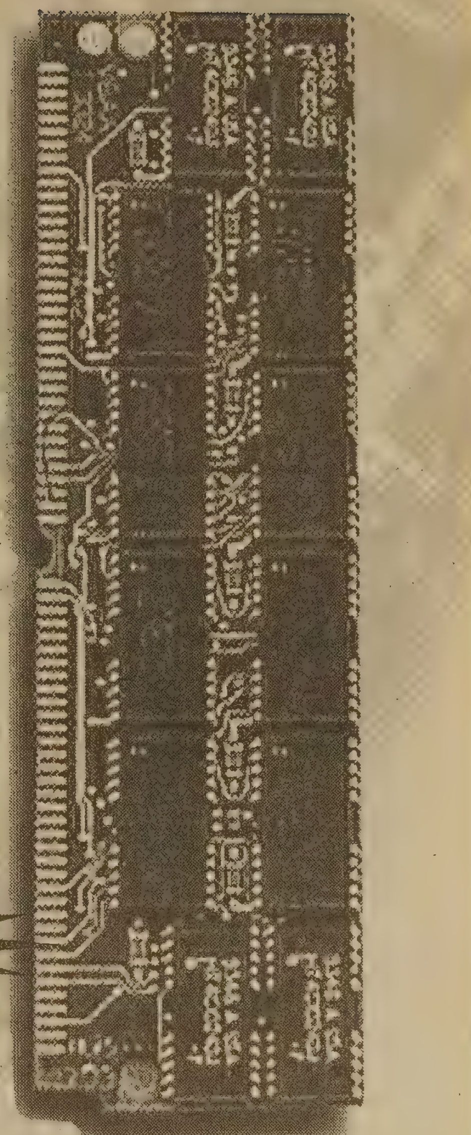

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MULTIMEDIA 101 *continued...*

best known as Creative Director of the award-winning Virtual Adventures location-based-entertainment (LBE) VR project developed by Iwerks and Evans & Sutherland in 1993. While still not commercially deployed on a wide scale, Virtual Adventures is part game, part movie, and part ride (and Pearce explains that it had to be a *great* game, movie and ride), with the object being for the players to team up and rescue the Loch Ness Monster's eggs from bounty hunters. *TIME* called it "The Barney of VR games."

Recently, Pearce designed collectible trading cards and "transmedia products" to be used in conjunction with Purple Moon's new line of CD-ROMs and Web sites for girls. However, she has been a professional participant in various arenas of the interactive movement since 1983. Before that, ever since her birth, both her parents played roles in the proto-interactive design scene of the '60s and '70s. All of this and much, much more is well laid out in her innovative and imaginative book—a book that seems nearly destined to have been written.

Although she has mostly worked on LBEs rather than desktop products, Pearce has plenty to say—and it's all worth hearing—about various aspects of the entire interactive entertainment industry. She dishes the dirt on various idiotic schemes, philosophizes on the true meaning of interactivity, righteously rants on the subjects of violence and sexism, covers the wild fluctuations of her career path (but she's mostly on an upward trajectory), discusses some technical issues, and muses on media history and its relationship with society. It's a great book to read, both for what she reveals about herself and for what she has to say about the course of interactivity.

The danger of a book like this is that it can end up as a complete mish-mash. Here's where its innovative quality comes into play, along with a claim on the word "interactive" beyond just its subject matter. Rather than being a linearly written book progressing through her thoughts in whatever sequence she might deem appropriate, Pearce has arranged the subjects covered in alphabetical order, i.e. somewhat randomly, and then put Go-To links between topics. A few topics are linked to one or two other places, while most take off into a thicket of connections.

I was skeptical at first, but it works well. In fact, it becomes really fun just to dip into the book at random and see where you get to by reading from one section to another. Interestingly, it also keeps you reading far longer than you might if you were just plodding along in a straight line, although eventually a certain frustration creeps in because you know you're not going to get to everything of interest in one session. Of course, none of this would matter or work if Pearce's writing did not engage you with the entertaining and intriguing qualities of her thoughts.

The Interactive Book succeeds both as a document of one individual's ride through the bumpy rapids of the new media industry and as a manifesto of what that industry should attempt. Again, as with *From Myst To Riven*, this is a near-essential book for anyone looking for general insight into the interactive media world or attempting to glean career advice about how to advance once within it. Pearce doesn't make it look easy, but she's certainly enjoyed herself and the work she's done along the way.

For a little more background on Pearce, check her "text-only, all-browser, plug-in free, low-bandwidth, high informational content" Web site at *www.momentum-media.com/*.

GROWING UP DIGITAL

Despite his irritating and near incessant use of the word "boomer" to describe those between the ages of 34 and 52, Don Tapscott, in *Growing Up Digital—The Rise of the Net Generation*, finally presents a good case for interactive media producing both a new mindset in and a new world for what he calls "N-Geners," the currently teenage-and-under echo of the baby boom born since 1977. Of course, the concept of the screenager is nothing new, but Tapscott fleshes out what it means for them now and for society in the future.

His central thesis is that the erruption of the Web over the past few years, in particular its use for two-way communication and chat by "N-Geners," along with the general longer-term use of interactive multimedia in education and entertainment, essentially sets the stage for completely new attitudes towards media and society in the young.

We've heard the argument piecemeal from others before, mostly from partisan and relatively young voices reporting from the midst of the melée. Tapscott, however, is something of a "boomer" himself and, while hardly impartial or uninvolved, somehow manages to step far enough out of the fastest part of the stream to produce some sense of objectivity. He also provides analysis of the various ways different scenarios might evolve, rather than simply proclaiming the ascendancy of the young. Beyond that, he makes a strong plea for fairness on social and economic issues by both age groups.

A large part of his argument revolves around the differences between the famously passivity-inducing TV and the amazingly activity-producing Internet. While Tapscott argues his case vehemently, I am neither entirely convinced that TV had all the effects ascribed to it in the '60s, particularly when it came to communication between various members of what was then known as "The Underground," nor that what he describes as widespread beneficial attitudes among "N-Geners" are as widespread or will be as long-term as he thinks.

A large part of Tapscott's material came from his own children and his Web site where he gathered opinions from visiting "N-Geners;" other material came from commentary collected by monitors on other youth sites. The problem is that this sounds rather like a self-selected sample of the elite to me. Many of the opinions sound like expressions of the fairly typical idealistic and overly hip arrogance and naiveté endemic to those without much experience in the cruel world. Much of what he proposes and projects requires some radical readjustments by economic and political institutions, institutions that have certainly made some accommodations to boomers' demands over the past 30 years in matters of style, but have not fundamentally changed their attitudes.

Being a malcontent myself, I really hope that Tapscott is right. As a skeptic, I recognize the strength of his case, but reservations linger. I am, however, convinced of his good intentions—he is not just a pundit grinding his favorite axe. His chapter on the issues currently facing the educational system, what is required for justice and fairness to be done in educating the children of today and tomorrow, and possible digital media improvements and techniques, reveal a man who cares deeply in his heart about children and their opportunities.

If there is one serious problem with *Growing Up Digital*, it is not with Tapscott's overall arguments or his methods. It is that some of the writing is choppy, jumping about wildly within paragraphs, making it occasionally difficult to understand what he really means. He thanks his

MULTIMEDIA 101 *continued...*

editors, two of them, in the Acknowledgments, but there are passages that definitely need to be smoothed out.

In addition, there are a large number of typos scattered throughout the book. Unfortunately, this is also a problem with *The Interactive Book.* Some imply that the manuscript wasn't even run through a spell-checker; others that it wasn't competently proofread.

One of Tapscott's big points about the Internet is that, whatever its multimedia future, today it is a reading and writing communication medium. It might be acceptable to be colloquial and use idiosyncratic spelling in chat and email, but when it comes to presenting a serious argument in a book, the standards are higher. Unfortunately, publishers often seem to feel that new media means cheap media, and are not prepared to pay for quality production work even when the medium is as static and unforgiving as a book. As *From Myst To Riven* and the success of both titles show, attention to detail is crucial in making something, even something non-static, fully believable.

Even with that drawback and some other minor quibbles, *Growing Up Digital* is a worthwhile read for anyone interested in what's going on with at least some of the youth of today and what the future might hold for them. It's also an intriguing examination of the effects of different media on thought processes. If nothing else, the book should engage your own thought processes into consideration of what the effects of the popularity of the Internet might be beyond shopping at home, while also presenting some idealistic and hopeful possibilities about the outcome of widespread interactive media.

Overall, *Growing Up Digital* is a very optimistic book. Somehow it manages to avoid being too shrill about the future, although at times its relentless bashing of TV and boosting of the Web gets a little tedious.

Substantial portions of the book and related material can be found on its associated Web site at *www.growingupdigital.com*. ■

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32-Bit Computing *continued from page 72*

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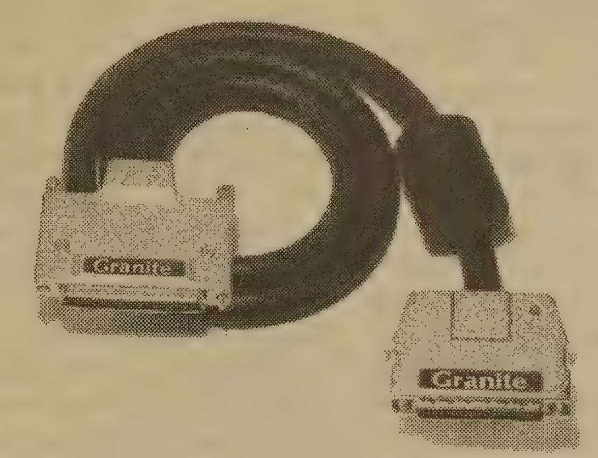

Readers of my late OS/2 column may recall that even at earlier, slow SCSI speeds, problems due to cabling and termination were crippling and hard to figure out. At the current UltraWide transfer rates of 40MB/sec, tight adherence to the SCSI specifications by cables (length and quality) and termination has become essential.

The total length of the SCSI chain—internal and external—should not exceed six feet; the shorter the better. The quality of the cables themselves (gauge, shielding, impedance, contacts, etc.) also affects performance and reliability; the average SCSI cable doesn't necessarily meet these quality standards—something discernible to the user only when problems occur—and problems are difficult to diagnose.

To ensure top performance and reliability for your disk subsystem and facilitate diagnostics, get high quality cables and termination from the SCSI specialists, Granite Digital.

First, decide if you will have external drives. If not, you only need two internal cables, with which to connect two hard drives (wide) and a CD-ROM and removable drive (narrow) to the controller. In this configuration, the controller is in the middle of the chain, between the internal wide and narrow sections and external drives cannot be connected to it. The last drive on each cable must be terminated.

Another option is to have both narrow drives (CD-ROM and removable) external, in which case you daisy-chain them to the controller using a 68-to-50 and a 50-to-50 external cables. The last external and internal devices must be terminated.

But what if, like me, you want the removable drive internal and the CD-ROM drive external? Well, it is possible and will even save you the cost of the 50-to-50 external cable. The internal cable to which the removable drive connects, can be extended to the back of the case, equipped with the proper 50pin connector and brought out via one of the empty slot holes in the case, to connect the CD-ROM drive to it, instead of to the controller. Terminate the last hard drive and the external drive.

When you've settled on the drive configuration, establish into which bays the drives will go then, for each internal cable, gauge the distances between the controller proper connector and the first hard drive in the SCSI chain; and between it and the second drive. Do the same for the narrow drives (including the distance between the last narrow device and the back of the case, if you opt for the latter configuration). Arrange your external drives such that you can minimize the length of the external cables.

Provide the information to Granite Digital. For common lengths they have standard cut SCSIVue Gold Teflon cables (two narrow drives cable), otherwise they will make you a custom one, priced by length and number of connectors (see Listing 1). The SCSIVue Gold Diagnostics external cables have a LED on their connector which helps diagnosing problems. If you have external drives, get also a 50pin SCSIVue Active Terminator for the last one, which is more reliable than the drive's and has four diagnostics LEDs.

More on SCSI cabling and termination in disk subsystem articles.

Be It Ever So Humble

continued from page 106

This Old Rollover

Taxpayers have long been able to deduct the expenses of maintaining a home office (e.g., a portion of rent or depreciation, insurance, utilities, and repairs). But the Taxpayer Relief Act of 1997 made sweeping changes in the rules governing home office depreciation. Under the new rules, a sizable portion of the taxes you saved by claiming depreciation on your home office will likely be paid back when you sell the house, even if you buy a replacement residence.

For example, consider a self-employed, freelance programmer owning a six-room house. One room is stuffed with computer equipment and serves as an office, so one-sixth of household expenditures for utilities and maintenance are deducted. Depreciation expense for one-sixth of the cost of the house is also claimed.

The programmer has been thinking about selling the house at a profit, and buying a more expensive one. Before the tax law changed, the gain from the old residence could be "rolled over" into the replacement residence, deferring the gain for tax purposes.

A portion of the gain would have to be allocated to the home office, and that portion wouldn't qualify for rollover because it was considered a sale of business property. A 1982 ruling, however, indicates that if a home office deduction isn't being claimed at the time the house is sold, the entire property can qualify for gain rollover, even if an office in the home deduction had been claimed in earlier years.

This year's tax legislation changes all that. The old rule, postponing gain on the sale of a principle residence if you purchase a replacement residence within two years, was repealed for sales after May 6, 1997.

In its place, a new rule says that an individual can exclude up to $250,000 of gain on the sale of a residence (or up to $500,000 on a joint return). Gain is taxed, however, to the extent of any depreciation allowable for business use of the residence after May 6, 1997.

So if the programmer claims $10,000 for depreciation of the home office occurring after May 6, 1997 and then sells the house at a gain any time after, that $10,000 of depreciation will be recaptured; meaning $10,000 of income must be reported in whatever year the house is sold. And special tax rates apply. Even if depreciation deductions are not actually claimed on the tax returns, the recapture tax will still apply to the extent depreciation was allowable and the homeowner could have claimed it.

Most consultants who are now claiming a home office will continue to do so despite the new depreciation recapture rule, because the recapture will only inflict its pain down the road a spell and there are still plenty of other tax benefits for a home office. Of course, if you are a renter, the rule can't hurt you.

The Sun Shines Bright

On the happy side, the new law imposes less stringent conditions on eligibility for claiming a home office deduction. One way home office expenses are deductible is when they can be allocated to a portion of the home that is exclusively used on a regular basis as the taxpayers principle place of business. Under prior law, "principle place of business" meant a place where a taxpayer performed the essence of professional services. Contract techies who routinely consulted, did programming, or wrote documentation at their client's site were often disqualified.

The new law is more liberal. A home office qualifies as a principle place of business if:

1. The office is used by the taxpayer to conduct administrative or management activities of the taxpayers trade or business; and
2. There is no other fixed location of the trade or business where the taxpayer conducts substantial administrative or management activities of the trade or business.

Under the new standard, a programmer or other technical consultant might spend most of the day being harangued by clients at their business locations and still be eligible to claim an office in the home deduction. However, the new standard will apply only for tax years beginning after December 31, 1998.

On The Road Again

The expanded definition of principle place of business, once it comes into effect, will also enable many self-employed or contract workers to deduct the cost of daily transportation to and from their homes to meet with clients.

Whether the transportation is deductible or not may depend on if a home office deduction is allowed. Under prior law, transportation costs were often classified as nondeductible commuting expenses because it was so difficult to meet the principle place of business test. The rules allowing automotive expenses roughly translate as follows:

(1) You can deduct the expense of daily transportation between your home and a temporary work location outside the metropolitan area where you live and normally work. However, unless paragraph (2) or (3) below applies, daily transportation between your residence and a temporary work location within that metropolitan area is nondeductible.

(2) If you have one or more regular work locations away from your residence, you can deduct transportation expenses incurred between your residence and a temporary work location, regardless of the distance.

(3) If your home qualifies as your principal place of business, you can deduct the cost of transportation between your home and another work location, regardless of whether the other work location is regular or temporary and regardless of the distance.

Under this third paragraph, the most generous allowance for deductibility of transportation costs hinges upon having a qualified home office. Pass this test and you can drive your BMW to tax heaven.

The rules for writing off the cost of a computer, claiming home office expenses, and deducting automobile mileage are thus strangely intertwined in a tax macarena. With some catches, the new legislation mostly liberalizes the rules for the abused, workaholic employee; the garage-office entrepreneur (so long as it's not detached); and the contract techie... basically, the majority of those working in the Greater Silicon Valley. ■

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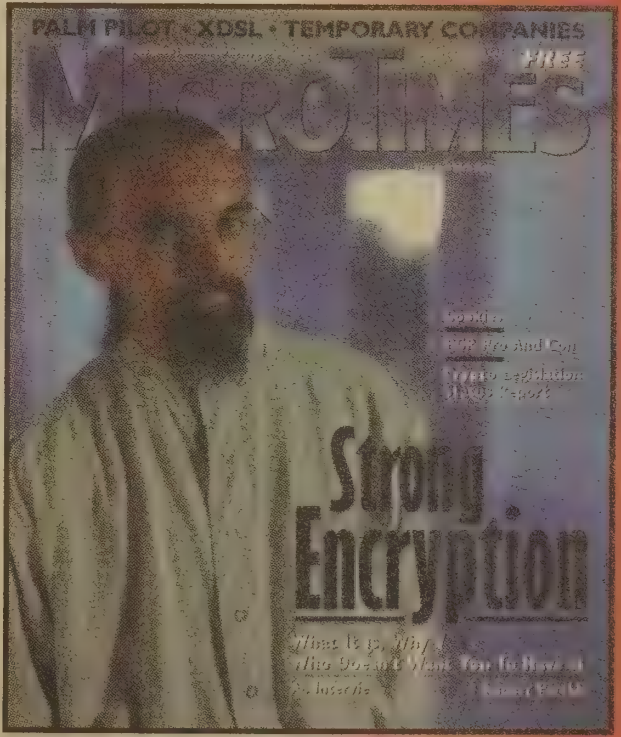

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Talking To Your Computer

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Dragon Naturally Speaking Personal, Preferred and Deluxe

The king of the speech recognition hill, Dragon Systems puts out several versions of its Naturally Speaking software, all of which have outstanding features.

As with the Via Voice Gold program, extensive training is initially needed to set up the user. Unlike the IBM product, Naturally Speaking places text in its own window; upon completion, a couple of quick voice commands can copy it to another application, such as a word processor or desktop publisher program. A patch is also available on the Web site to enable these programs to place text in any application, though I found it to be slightly slower when used this way.

> The latest software can now take complete control of your computer, enabling you to open applications, print documents, manipulate files and even send off an email without touching a keyboard or mouse.

The design of this software is excellent, with the ability to dictate text or control the system completely integrated. You can be dictating text and then decide to pull up email with just a few voice commands. Full editing can be done alongside of dictation; an incorrect word or phrase can be eliminated with a simple "scratch" command. Additional words to the vocabulary may also be added quickly and easily without touching a key or moving the mouse.

The Personal edition only lets you profile one user, while the Preferred and Deluxe allow multiple profiles. The Deluxe version also adds an interesting feature, the topic builder. This feature enables the user (or users) to set up different topics for the particular style of writing you're doing. An attorney topic could contain legal terms, while a business topic would contain business words. Each topic may be called up whenever it is needed.

The Deluxe version also adds a complete macro language and an increased active vocabulary. Both the Preferred and Deluxe also include Mouse Grid, which allows the user the ability to position the mouse anywhere on the screen with simple voice commands.

Naturally Speaking Personal or Preferred are great products for home or a small business, giving you the most hands-off of any voice recognition product. For someone wishing for macro languages or having a desire for multiple topics the Deluxe edition should be able to handle anything. ■

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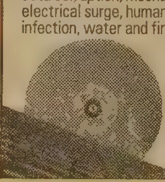

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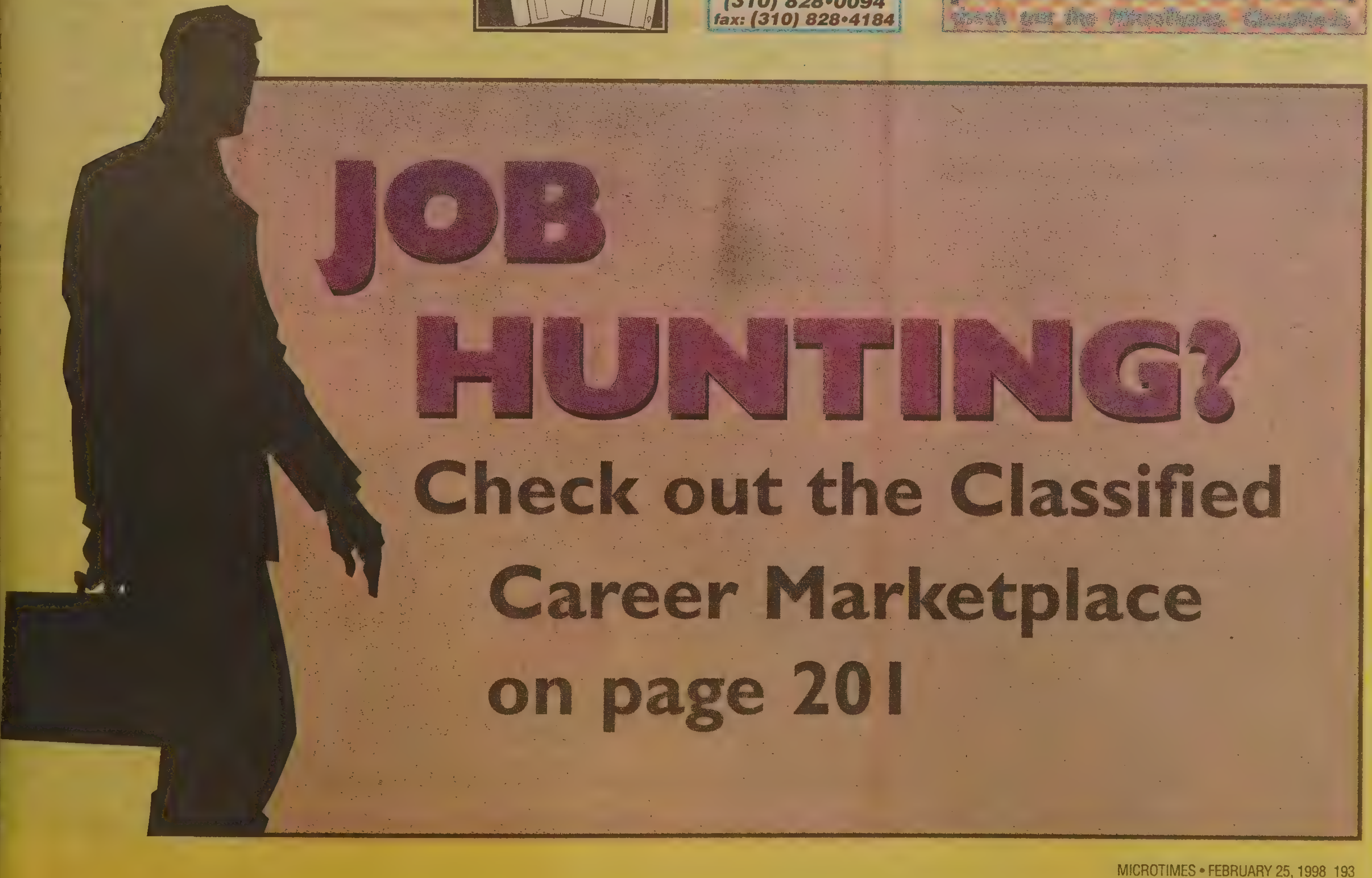
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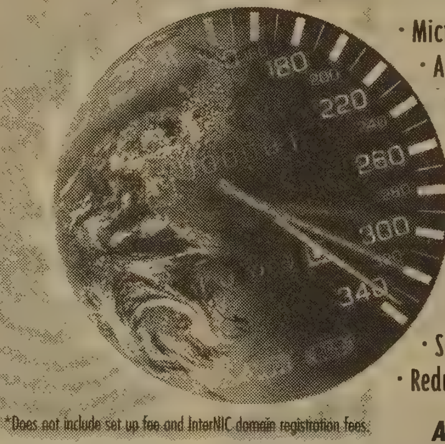

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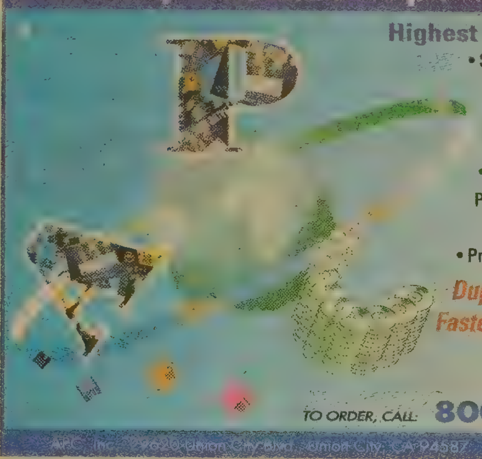

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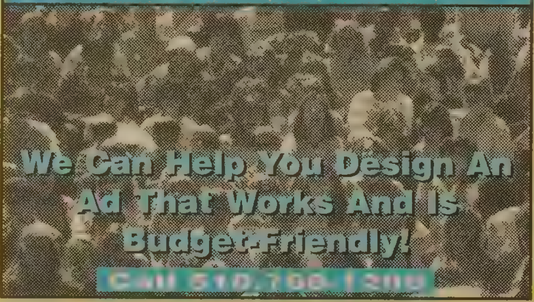

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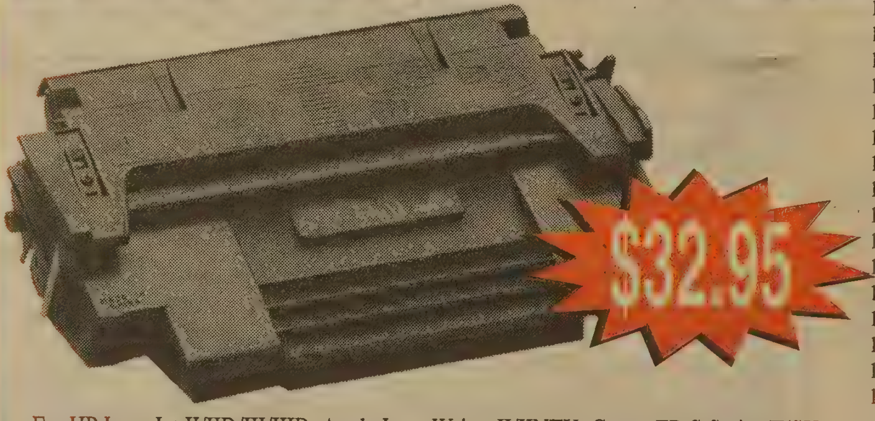

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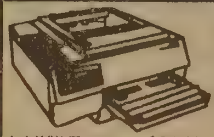

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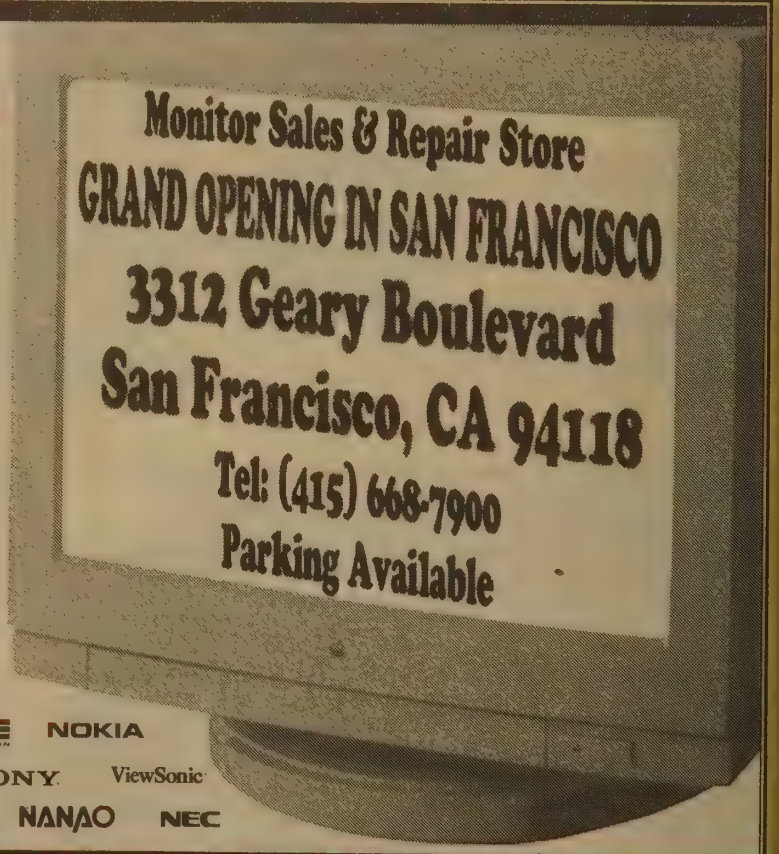

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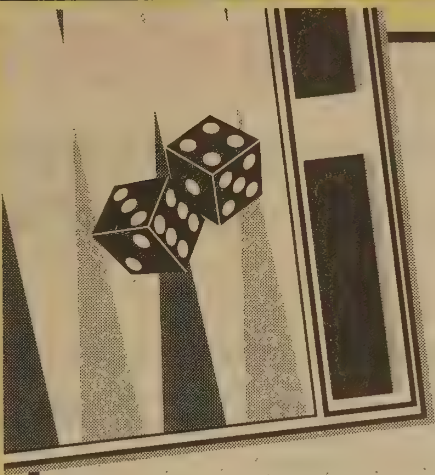

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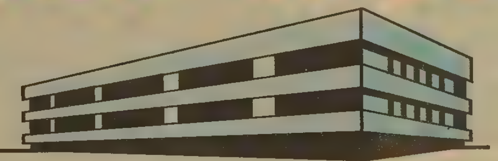

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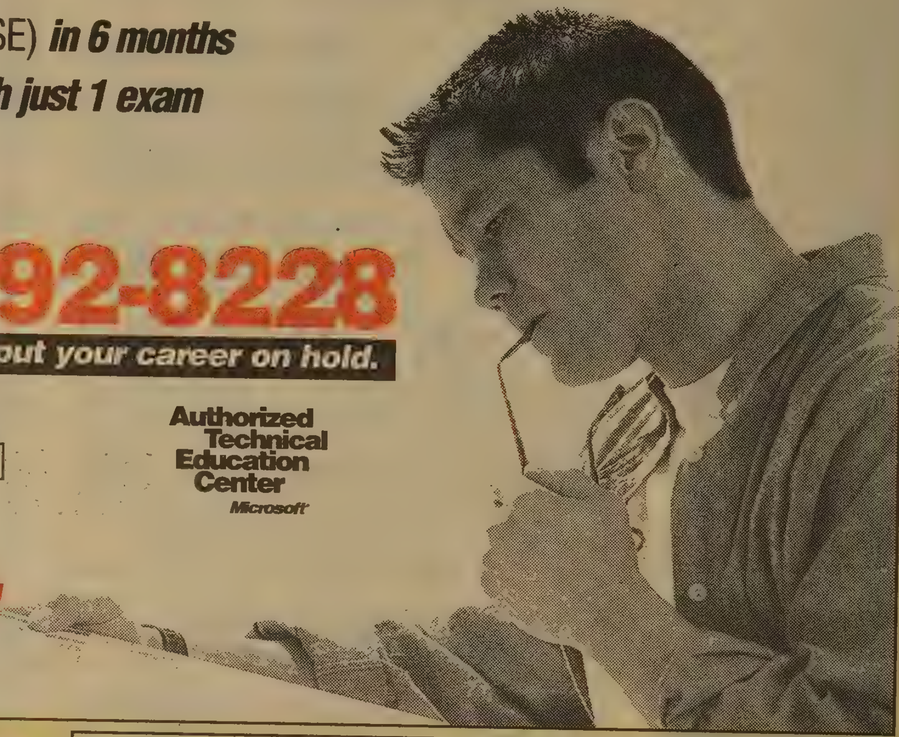

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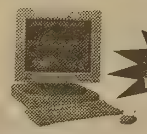

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PalmPilot *continued from page 44*

Smartcode Software logo, a basic drawing program (called HandPaint. Surprised?) is provide that allows you to paint your own image. It would have been great if it allowed you to import a PalmPilot image. This would make it a bit easier to create something cool on your desktop PC. Drawing anything decent on a PalmPilot is an exercise in futility.

Although you still need the modem adapter or external modem to use HandFax, it will work with any Pilot, even one that doesn't have one megabyte of memory.

Since you will probably be in a hotel room or other similar locations, there are phone settings provided to add a prefix and/or suffix to the telephone number (like dialing a 9), call waiting disabling, and calling card pre-dialing.

True Mobility

I've really enjoyed using HandStamp. It's helped me keep up with my email on the weekends and prevented me from facing a hundred-plus messages on Monday morning. It's also great to send a quick note off without going through the annoying task of booting up my entire system just to send a single message.

In that same vein, HandWeb has shown its worth, too, by allowing me to access frequently used information quickly and easily, with minimum hassle. I am sure that HandFax will end up being a lifesaver at some point when I'm on the road at a trade show or something, even if I only use it to print something out.

The PalmPilot coupled with Smartcode Software applications is really what true mobile computing is all about. Leave that bulky laptop at home and just pocket your PalmPilot and clip-on modem. Your PalmPilot might even start helping your social life.

Picture this: You're picking up a date. You ask your date if you can use their phone. (Hey, it's a local call!) When they ask why, you tell them you need to check your email, send a message to a client in Tokyo, fax a sell order to your broker, check the weather for tonight, and get the movie schedule for the local theater. They'll be eating out of your hand... ■

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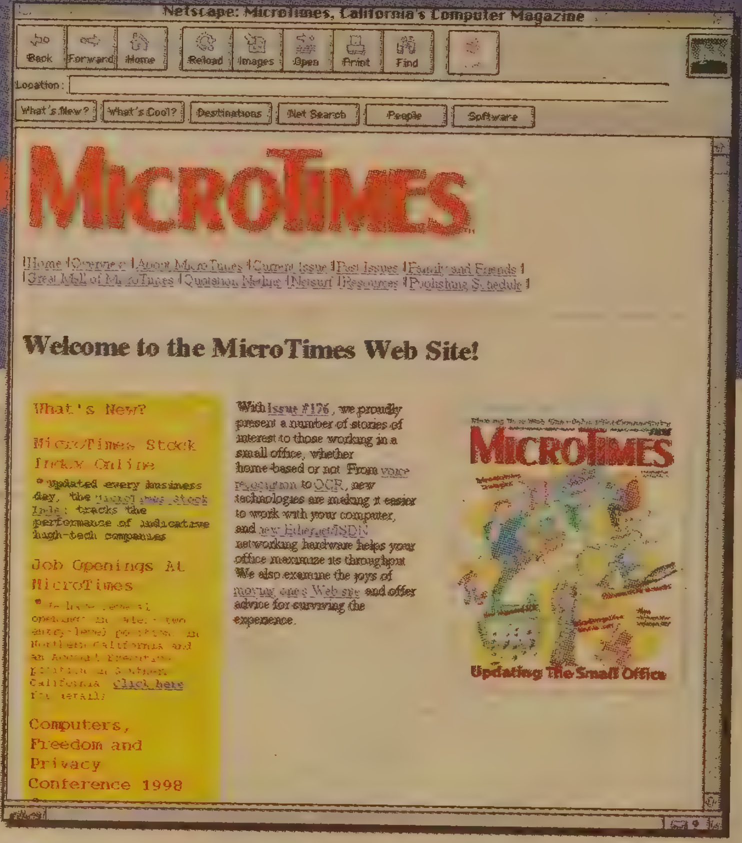

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With Issue #176, we proudly present a number of stories of interest to those working in a small office, whether home-based or not. From voice recognition to OCR, new technologies are making it easier to work with your computer, and new Ethernet/ISDN networking hardware helps your office maximize its throughput. We also examine the joys of moving one's Web site and offer advice for surviving the experience.

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continued from page 144

The Mac Community On Planet BMUG

Another area where you can expect to see some change is with our online resources. If you are already a BMUG member, you're probably familiar with Planet BMUG, our FirstClass™ BBS (See Sam's article above). FirstClass software provides a finder-like interface for communicating over the 'net.

It's as easy to use as AOL, but provides a much nicer, safer community. Planet BMUG is truly the place where BMUG's mission of sharing information gets carried out almost constantly. If you haven't checked it out, you should.

With more than 2000 people who log in regularly from over 20 countries, Planet is the virtual place to come when you have a question about anything. And I do mean anything. In addition to conferences on hardware, software, Newtons, BeOS, and many other computer-related topics, there are also tons of conferences with evocative names like "Good Eats," "Romance and Friendship," and even "Freedom, Privacy, and Technology," (where you can talk about your posts that have been censored!).

On Planet BMUG, people teach, learn, play, and just hang out. Many people join BMUG just for Planet BMUG. It is one of the best services we provide, and it is about to get better: By the time you read this, Planet BMUG will have moved from its current ISDN connection to a full T-1. We will also have 17 modems available for direct dial-up (510-849-2684). Both the T-1 and the phone lines for our modems are being donated to us by a local ISP, Global InfoNet (*www.california.com*).

The Famous BMUG Newsletter

The BMUG Newsletter is an essential part of BMUG membership. We are committed to continued development of the newsletter, examining all sorts of ways to make it better.

First, we are going to tighten editorial control and print fewer articles. By reducing the number of pages significantly without sacrificing our highest quality content, we will be able to produce a better newsletter at a lower cost.

Second, we are looking at alternative methods of delivery for newsletter content. We know some people will always want to hold a book in their hands, but others might be happier with a searchable CD-ROM or even Web-based delivery.

Lastly, we are going to look for alternative sources for funding the newsletter. These will include sponsors and possibly advertisements, but any ads will be wholly separate from content and will not affect the newsletter's quality or integrity. We hope this will enable us to publish more frequently in order to maintain better and more timely communication with our members.

Small Changes, Big Results

In addition to the more obvious changes, BMUG is also changing some important things on the inside. One example is that we have changed the length of the terms of directors from one year to two, and staggered the terms. This will enable us to keep momentum going on our work instead of having to bring an entirely new board up to speed every year.

We have also sought (and received) outside expertise for our board. BMUG boards used to come entirely from within BMUG. This meant that we ended up with directors who cared a great deal for BMUG, but sometimes lacked other skills and experience necessary to direct an organization of BMUG's size and reach. This year, we have industry leaders with experience in marketing, fund-raising, business management, etc. I hate to sound like a vampire, but the fresh blood has been invigorating!

If you are already a member of BMUG, expect to see these and other changes make your membership an even better value. If you have yet to join, come check us out. You'll find a great group of people who have gathered around a great operating system. ■

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What Is BMUG?

BMUG is an educational non-profit computer user group providing know-how, software, and opportunities for 10,000 computer users from countries around the world. We are in the business of giving away information.

BMUG publishes and distributes some of the best computer books and CD-ROMs available. Our semi-annual 400-page "Newsletter," sent to every member, contains scores of articles on every facet of Macintosh computing, the Internet, and more, plus hundreds of megabytes of useful software on the included CD-ROM, all without a single advertisement. Our three BBSes are thriving virtual communities where thousands of people share information about everything from how to defragment a hard drive to how good the latest Emma Thompson movie is, all presented through the friendly FirstClass user interface.

The BBSes also offer access to much of our constantly updated software library. BMUG offers volunteers a broad range of opportunities to learn valuable skills while helping people and having fun. We support over a dozen free Special Interest Groups aimed at everyone from complete beginners to professional programmers, where any member of the public can come to get questions answered. Members can make appointments with our valiant volunteer hardware gurus to get memory installed or mysterious problems examined.

You can learn more about us on our Web page at *www.bmug.org* , where you'll find schedules, maps, our guide to the best products for MacOS and general computing, and software and instructions you can use to take a free tour of our Planet BMUG and BMUG Boston BBSes, available by direct dial or over the Internet. Our office at 2055 Center St. in downtown Berkeley is open from 9 am to 5 pm. Come say hello there or at one of our meetings: weekly on the UC Berkeley campus and monthly in San Francisco and San Jose. For more information, call the announcement line at (510)549-2684, ext. 8. You can also fax us at (510)849-9026 or write us at 1442A Walnut St. #62, Berkeley, CA 94709-1496. Join us!

Resources

Calendar Of Events

Conferences, Shows, Special Events

February

February 21 MarketPro Computer Shows & Sales. Solano County Fairgrounds, Vallejo. MarketPro. Contact: 1-800-708-7555, or *http://marketpro.com* .

February 25 "A World of Strong Privacy: Promises and Perils of Encryption." $20 fee for food and room, Ming's Villa, Palo Alto. The Jefferson Club. Reserve your place at *http://www.ipser.com/jeffersonclub* .

February 25–27 Seminar on DNS, BIND, and IP. San Francisco. MetaInfo. Contact: (206)674-3700.

February 28 MarketPro Computer Shows & Sales. Sonoma County Fairgrounds, Santa Rosa. MarketPro. Contact:1-800-708-7555, or *http://marketpro.com* .

February 28 Robert Austin Computer Show. Oakland. Robert Austin Corp. Contact: 1-800-243-7041 or *http://www.robertaustin.com* .

March

March 1 Livermore Amateur Radio Klub (LARK) Swap Meet. Las Positas College, Livermore. LARK. Contact: (510)783-2803, or (510)447-3857 (eves.).

March 3 Free Seminar: CNE/MCSE Certification–Networking For Your Future. San Jose. LANOP. Contact: (408)441-9902..

March 3–5 Computer Telephony Conference and Exposition '98. Los Angeles.Contact: (215)355-2886, or *http://www.ctexpo.com* .

March 7 Robert Austin Computer Show. San Francisco. Robert Austin Corp. Contact: 1-800-243-7041 or *http://www.robertaustin.com* .

March 16-20 Seybold Seminars New York/Publishing 98. New York. Contact: 1-888-800-8922, or *http://www.seyboldseminars.com* .

March 19 Free Seminar:CNE/MCSE Certification–Networking For Your Future. San Jose. LANOP. Contact: (408)441-9902.

March 21 Robert Austin Computer Show. Oakland. Robert Austin Corp. Contact: 1-800-243-7041 or *http://www.robertaustin.com* .

March 28 Robert Austin Computer Show. San Francisco. Robert Austin Corp. Contact: 1-800-243-7041 or *http://www.robertaustin.com* .

March 29–April 2 INFOCOM '98. San Francisco. Contact: (908)949-2761, *ramesh@bell-labs.com* , or *http://www.comsoc.org/infocom/98* .

April

April 3–4 OPENARCH '98. San Francisco. Contact: (212)854-1747, *aurel@ctr.columbia.edu* , or *http://comet.ctr.columbia.edu/openarch* .

April 21–23 DSP Spring Design Conference. Santa Clara. Miller Freeman, Inc. Contact: 1-888-239-5563, *dspworld@mfi.com* , or *http://www.dspworld.com* .

April 21–23 Embedded Systems Conference. Santa Clara. Miller Freeman, Inc. Contact: 1-888-239-5563, *dspworld@mfi.com* , or *http://www.dspworld.com* .

April 27–29 Internet & Electronic Commerce Conference and Exposition (iEC). New York, NY. Gartner Group. Contact: (203)256-4700, *iec@expocon.com* , or *http://www.expocon.com* .

April 27–30 DVC '98 Spring Conference and Exhibition. Santa Clara. Contact: 1-800-227-1234, or *http://www.bcr.com* .

MARCH 24—27

JavaOne 98 Developer Conference

SAN FRANCISCO

Developers and industry leaders are poised to gather at Sun's upcoming 1998 Worldwide JavaOne Developer Conference in San Francisco, CA. This conference is set to be the best JavaOne Conference yet. This years attendance is expected to exceed last year's record setting crowd of over 10,000 developers, members of the press, industry leaders and Java technology enthusiasts. The conference's extensive schedule addresses the growing presence of Java technology-based innovations in the public and private sectors. The agenda includes a series of sessions that address the development of a growing base of consumer products using Java technology. Eight different categories also illustrate the explosion of Java technology within the marketplace. The growing presence of Java technology innovations in so many areas are sure to provide for an exciting 4 days in March and beyond. Now attendees can easily reserve their place, JavaOne online registration is available at *www.javaone.com* , and if registered before March 20th, attendees can save $300.

MARCH 19—20

Be Developers' Conference

SANTA CLARA

This conference is the ideal forum to get up to speed on development for the Be Operating System—the Media OS—to find out the latest Be technologies and future roadmaps, and to meet and discuss technology and products with other Be developers and marketeers. The conference features keynotes and a dual track format that includes sessions on basic BeOS programming as well as advanced sessions on specific technologies and software types. There will also be sessions on bringing products to market and Internet-based distribution. Tips, tricks as well as the unveiling of the BeOS release for Intel-based computers will be shown. This is the place to get all your development information, straight from the source. For more information, visit *http://www.be.com/developers/BeDc_info.html* .

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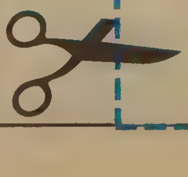

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Calendar Of Events *continued...*

April 27– May 1 IT Forum '98 San Francisco. Moscone Convention Center, San Francisco. Miller Freeman. Contact: *http//www.itforum.com* .

April 30–May 1 IEEE-USA Conference: "Engineering Careers into the 21st Century: Maximizing Individual and Organizational Growth." Phoenix, AZ. Contact: (202)785-2180.

May

May 20–22 The Forum for Hand-Held Computing in Healthcare 1998. New Orleans. World Market Strategies Ltd./PDA Inc. Contact: (415)641-2450.

May 26–29 IMET Conference. Chicago. IMET. Contact: 1-800-964-9665, or *http://www.imetcongress.com*

Classes, Seminars, Workshops

March

March 2–5 AutoCAD R14 Fundamentals Workshop. Santa Clara. The Copper Connection. Contact: (408)970-9838, *TeachACAD@aol.com* , or *http://www.copperconn.com* .

March 5–6 PCB Design for EMC Compliance workshop. Santa Clara. The Copper Connection. Contact: (408)970-9838, *TeachACAD@aol.com* , or *http://www.copperconn.com* .

March 9–12 AutoCAD R14 Advanced 2-D Workshop. Santa Clara. The Copper Connection. Contact: (408)970-9838, *TeachACAD@aol.com* , or *http://www.copperconn.com* .

March 16–19 AutoCAD R14 3D Workshop. Santa Clara. The Copper Connection. Contact: (408)970-9838, *TeachACAD@aol.com* , or *http://www.copperconn.com* .

April

April 2 Advanced Web Page Design Class. San Francisco. Computer Arts Institute. Contact: (415)546-5242, *cai@sirius.com* , or *http://www.sirius.com/~cai* .

April 6–9 AutoCAD R14 Fundamentals Workshop. Santa Clara. The Copper Connection. Contact: (408)970-9838, *TeachACAD@aol.com* , or *http://www.copperconn.com* .

April 9 Advanced Web Page Design Class. San Francisco. Computer Arts Institute. Contact: (415)546-5242, *cai@sirius.com* , or *http://www.sirius.com/~cai* .

April 13–16 AutoCAD R14 Advanced 2-D Workshop. Santa Clara. The Copper Connection. Contact: (408)970-9838, *TeachACAD@aol.com* , or *http://www.copperconn.com* .

April 16 Advanced Web Page Design Class. San Francisco. Computer Arts Institute. Contact: (415)546-5242, *cai@sirius.com* , or *http://www.sirius.com/~cai* .

April 16–18 PCB Design for Surface Mount Device workshop. Santa Clara. The Copper Connection. Contact: (408)970-9838, *TeachACAD@aol.com* , or *http://www.copperconn.com* . ■

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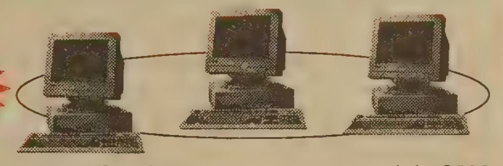

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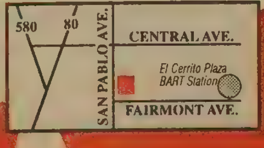

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408

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Greater Light Online. (510)741-5572, 754-6010. 24 hrs., Christian-oriented. Wildcat! 5 GUI. Files, games, message bases. Fee/free. Sysops: Michael Bryant, Beverly Reagan. [Exp. #176]

Hypoxia BBS. (510)353-1310, 651-7328, 651-3876; *http://www.geocities.com/SiliconValley/6056/hypoxia.html* . 24 hrs., 28,800. Open to Mac and PC. For the GUI client visit our Web site. Free basic access, $15/year for complete access. Sysop: Lord Lief [Exp. #176]

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The Floor Show. (650) 952-3231. 8-N-1, 24 hrs., 33,600. Messages, files, games. Full access at first call. Newcomers welcome. Free. [Exp. #178]

707

Monkey Glands. (707) 542-5587. Linux-based system in Santa Rosa. No validation, free. Sysop: Magic Man. [Exp. #176]

User Groups continued on page 216

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Free BBS listings are limited to the board's name, phone number, hours, baud rates, parameters, and a ten-word description. Please let our readers know if your BBS is free or requires a fee. Because we have an ongoing problem of boards shutting down without telling us, much to the annoyance of would-be callers and the new phone number's owner alike, we will **delete these listings after they've run three months.** The notice at the end of the listing—Exp. #xxx—refers to the last issue number it will appear in unless renewed.

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US Mail should go to: MicroTimes User Group, 1300 Clay St., Ste. 820, Oakland, CA 94612. **Faxes** are welcome at (510)768-1288. **Email** can be sent to: *sara.tassione@microtimes.com* or MCI:MICROTIMES.

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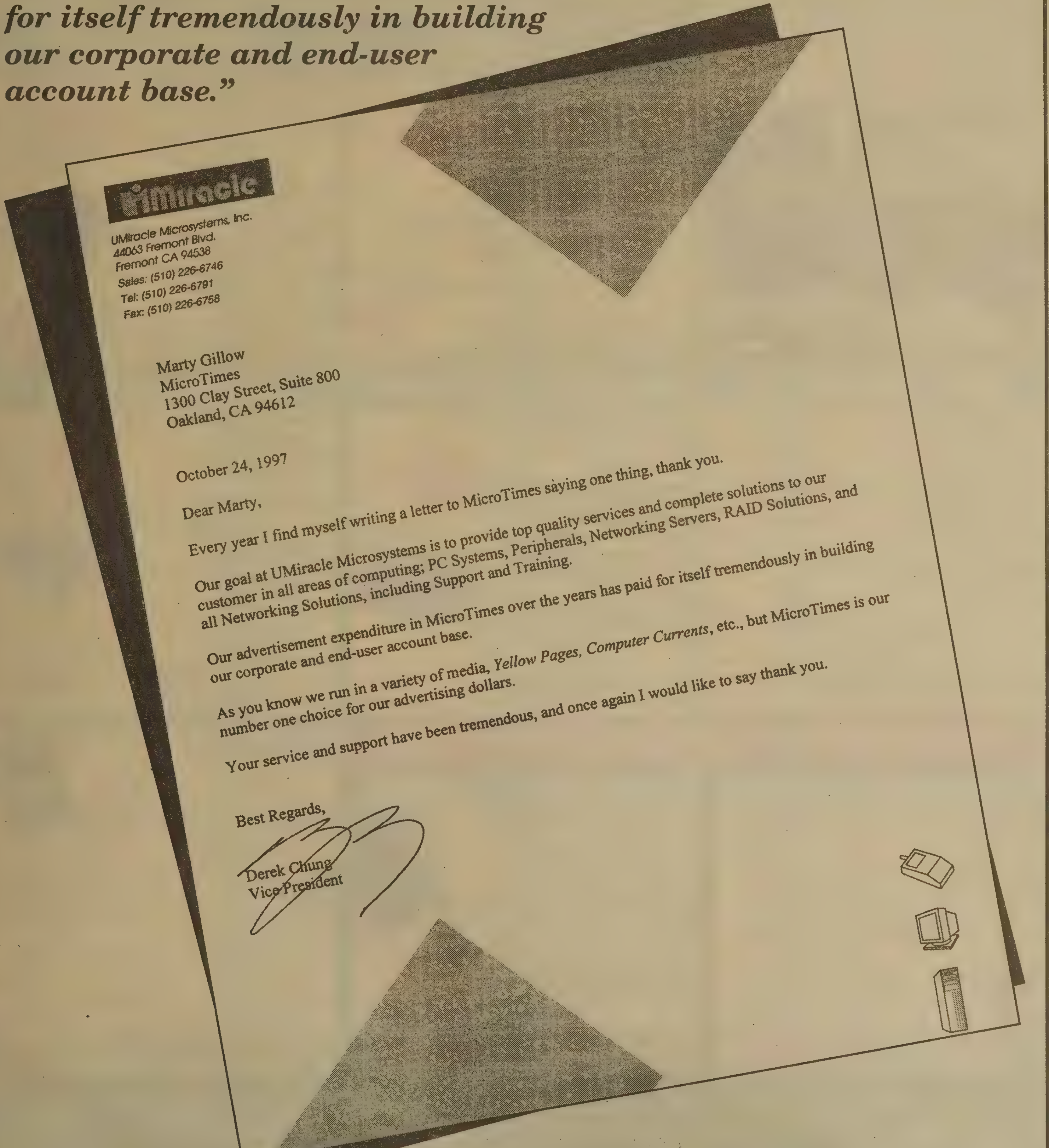

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Marty Gillow
MicroTimes
1300 Clay Street, Suite 800
Oakland, CA 94612

October 24, 1997

Dear Marty,

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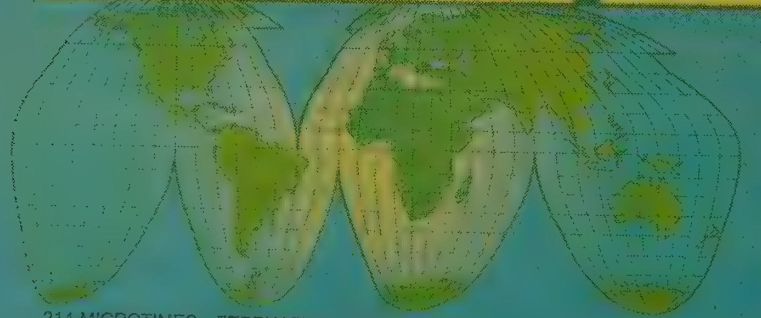

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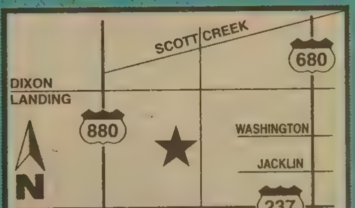

USER GROUPS

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AMIGA

AWEST–Amiga Users In SF. Meetings: 2nd Wed., 6:30 pm, Excelsior Branch Public Library, 4400 Mission St. (near Ocean), San Francisco. Call: (415)474-1164; BBS (415) 441-1120. [Exp:#181]

TOGA–The Other Group Of Amigoids. Meetings: 4th Sat., 12:30 pm, Milpitas Community Library Meeting Room, 40 N. Milpitas Blvd., Milpitas. An informal group to share ideas, PD software, and information. Free. Contact: Randy Abel, (408)356-9405 or *rabel1@dsp.com;* Warren Burnham, (408) 252-3406 or *wburn 46506@aol.com ; http:// www.calweb.com/~rabel1* .. [Exp:#179]

ABACUS–Atari Bay Area Computer Users Society. Meetings: 1st Sat., 1:00 pm, Potrero Branch Public Library, 2nd floor, 1616 20th St., San Francisco. Supporting all Atari computers and video games systems. Call: Roger Sinasohn, (415)469-7924, BBS (415)564-8062. [Exp:#176]

San Leandro Computer Club. Meetings: 1st Tues., 8:00 pm, St. Leander School, 451 Davis St., San Leandro. Call: Robbie, (510)797-5636. [Exp:#181]

CLARION

Silicon Valley Clarion User Group. Meetings: 2nd Weds., 7:00 pm, San Jose. Contact: Don Wood, *http://www.desine.com/ svcug* . [Exp:#181]

COMMODORE

CHUG (Commodore Hayward User Group). Meetings: 2nd Sat., 2:00–4:00 pm, Palma Ceia Park Clubhouse, Hayward. Commodore 64 and 128 owners are welcome to attend. Call: (510)793-7868. [Exp:#181]

CWEST–Commodore 64/128 Users In SF. 2nd Wed., 6:30 pm, Excelsior Branch Public Library, 4400 Mission (near Ocean), San Francisco. Call: (415) 474-1164; BBS (415)441-1120. [Exp:#181]

Diablo Valley Commodore Users Group. Meetings: 3rd Thurs., 7:00 pm, Clayton Valley Presbyterian Church, 1578 Kirker Pass Rd., Clayton. Call: (510) 689-3224. [Exp:#176]

FUNHUG (Fremont, Union City, Newark, Hayward User Group). Meetings: 3rd Thurs., 7:30 pm, Newark Public Library, 6300 Civic Terrace Ave., Newark. For the Commodore 64/128 computer. Call: (510)793-7868. [Exp:#176]

IBM AND COMPATIBLES

AT&T Computer Users Group. Meetings: 1st Wed., 7:00 pm, 50 Fremont St., 40th Floor (near 1st and Mission), San Francisco. Demonstrations, technical support, informal discussion. Call: (415)885-6631. [Exp:#176]

Berkeley PC Users Group–BPCUG. Meetings: 2nd, 3rd, and 4th Tues., 7:00 pm, Winner's Circle Systems, 2618 Telegraph Ave., Berkeley. Public domain library, newsletter, and separate Beginners Special Interest Group meeting. Contact: Mel Mann, (510)526-4033 or *melmann@aol.com* [Exp:#176]

Diablo Valley PC User Group–DVPC. Meetings: 1st Thurs., 7:00 pm, Bank of America Technology Center, Bldg. B, 2001 Clayton Rd. at Galindo, Concord. SIGs include Internet, Windows, Beginner's, Visual Basic, education/entertainment, and more. Call: Craig Peterson, (510)556-1449, *bod@dvpc.org* , or *http://www.dvpc.org* . [Exp:#181]

East Bay FOG. Meetings: 2nd Wed., 7:30 pm, Episcopal Church of St. John-in-Montclair, 1707 Gouldin Rd., Oakland. All microcomputers, MS-DOS, CP/M. Call: (510) 653-2627, 8 am–10 pm. [Exp:#176]

Golden Gate Computer Society. Meetings: 4th Mon., 7:00 pm, San Rafael Community Center, 618 B St., San Rafael. Free intro to computers class at 6:00 pm. Call: (415)454-5556, or *http://www.ggcs.org* . [Exp:#179]

Napa Valley PC Users Group. Meetings: 2nd Wed., 7:30 pm. Guests welcome. Call: Lee Schwab, (707)257-2675, *programs@nvpcug.org* , or *http://nvpcug.org/* for details and location. [Exp:#176]

PC Clubhouse. Meetings: 1st Fri., 7:30 pm, swap at 7:00 pm, Meiklejohn Hall, Room 2002 (inside 1009), CSU Hayward. Learn more about your computer. Product demos. Member help. Call: (510) 538-2449, (510)276-6450, or *http://www.pcc.org* . [Exp:#176]

Peninsula Computer Club. Meetings: 2nd Thurs., 7:30 pm, 222 Laurel St., San Carlos. DOS and CP/M libraries. Call: (650)593-9981, BBS (650)571-9259, or *larry w3553@aol.com* [Exp:#179]

San Francisco Business Computers. Meetings: 4th Tues., 5:30 pm, 110 Pacific, Ste. 153, San Francisco. For people who use computers in their work. Visitors $10. Contact: *sfbc@juno.com* . [Exp:#178]

San Francisco PC Users Group. Meetings: 3rd Tues., 7:30 pm, PUC Auditorium, 505 Van Ness Ave./McAllister. Q&A sessions. Call: Pierre Hahn, (415)474-1587 or 777-1332 for recorded events message. *http://www.sfpc ug.org* . [Exp:#181]

Stanford Palo Alto Users Group For PC (SPAUG). Meetings: final Wed., 7:30 pm, Conference Center at EPRI, 3412 Hillview, Palo Alto. All welcome. Call: Bev Altman, (415)368-9530 or 329-8252. [Exp:#176]

INTERNET

SVCS Internet SIG. Meetings: 1st Mon., 7:30 pm, Baker's Square Restaurant, 2910 El Camino Real, Santa Clara. Contact: *http://www.svcs. org/sigs/inet.html* [Exp:#176]

LEGAL

SF Bar Assoc. WordPerfect User Group. Meetings: 3rd Wed. odd-numbered months, noon, 465 California St., 11th floor, Boardroom. Chair: Al Buchignani. Call: (415) 421-5650. [Exp:#179]

MACINTOSH

BMUG–Berkeley Macintosh User Group. Meetings: Every Thurs., 6:30 pm, 2055 Center St., Berkeley (1/2 block south of Berkeley BART at Shattuck). BMUG is the World's Largest Macintosh User Group. All meetings are free, membership not required. Several SIGs also meet in the main office. Call: (510)549-BMUG, or *http://www.bmug.org* . [Exp:#179]

SLAEUG–San Leandro Mac User Group. Meetings: 1st Thurs., 7:30 pm, San Leandro High School, 2200 Bancroft Ave., San Leandro. Best DOM (3 disks) anywhere. Call: Stan (510)351-3973 or *skline@concentric.net* . [Exp:#179]

The Gay Macintosh User Group (GMUG). Meetings: 4th Thurs., 7:30 pm, St. Francis Lutheran Church, 152 Church St., San Francisco. We have answers to your Mac-related questions and members can win free software. Contact: (415) 552-GMUG, or *http:// www.gmug.org* [Exp:#176]

TriValley Macintosh User Group (TMUG). Meetings: 3rd Tues., 7:30 pm, Sonoma School, 543 Sonoma Ave., Livermore. Q&A, DOM, vendor presentations. Book, CD, MacAcademy training libraries. Free to public. Call: Jerry, (510)830-8838. [Exp:#176]

MISCELLANEOUS

FileMaker Pro Database Interest Group (DIG.FM). Meetings: 3rd Thurs., 7:00 pm, Claris Corp., 5201 Patrick Henry Dr., Santa Clara. Presentations, demos, and tips by and for passionate users of FileMaker Pro for both Mac and Windows. Not affiliated with Claris. Free. Contact: *info@digfm.org* ; or *http://www.digfm.org* . [Exp:#176]

Miscellaneous MS Access Peninsula User Group. Meetings: 2nd Fri., 1:00 pm, Metro Center Building, 9th floor, Foster City. All welcome from beginners to professionals. Contact: *http:// www.rampage.net/acc docs/sigs/htm* . [Exp:#181]

North Bay Users Group NBUG. Meetings: 2nd Thurs., 7:30 pm, 330 Rodgers St., Vallejo. Open to all. Contact: Lolly, (707)645-8768 or *http//home.inreach. com/nbug* . [Exp:#181]

MULTIMEDIA

Multimedia SIG Of The Software Forum. Meetings: 4th Thurs., 7:00 pm, Cubberly Community Ctr., 4000 Middlefield Rd., Rm. H-1, Palo Alto. $10. Contact: Mike Schmit, *mschmit@ compcore.com* [Exp:#179]

Networking South Bay Novell User Group. Meetings: 2nd Thurs., 6:00 pm, Novell offices, 2275 Trade Zone (at Lundy, off Montague east of 101), San Jose. Buffet, vendor presentations, technical education, user forums, "Networking in Hell" stories. Contact: (650)525-4567 or *ALLANH@SBNUG.ORG* . [Exp:#179]

NOVELL

Novell Users Group of Monterey/Salinas/Santa Cruz. Meetings: 3rd Thurs., 6:30 pm, 40 Ragsdale Dr., (Ryan Ranch), Monterey. Membership: $25/year or $5/meeting. Contact: *jspencer@redshift.com* . [Exp:#179]

PROGRAMMING LANGUAGES

Java SIG of the Software Forum. Meetings: 1st Tues., 7:00 pm, Cubberly Community Ctr., 4000 Middlefield Rd., Rm. H-1, Palo Alto. Free to members, $10 for non-members. Contact: Tom Hill, *javasig@worldware.com* . [Exp:#181]

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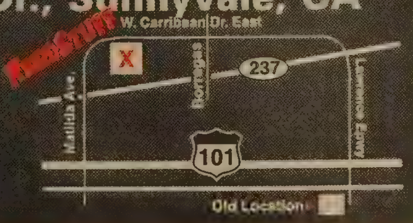

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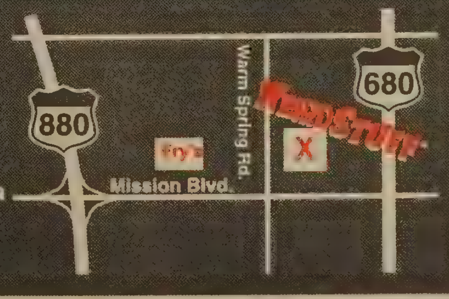


Products *continued from page 172*

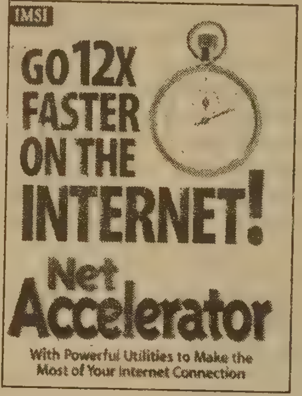
Product Reviews

Software

Data Desk Plus 6

Published By: Data Description, Inc.
For: Windows and Macintosh
List Price: Price depends on version (see below)
Review By: Matthew Leeds

Last year I returned to college to finish my degree. Along with the management, marketing, and finance classes, I faced ten weeks of statistics. As with most students, I had heard horror stories about statistics courses. I decided to get some tutoring via a program from Data Description called Data Desk Plus. This is an award-winning data analysis program that includes a multimedia tutorial on CD-ROM and covers the material found in an introductory college statistics class. The complete Data Desk Plus package runs $795 for the commercial version (discounted to $477 for academic use), but students can get just the tutorial (ActivStats) bundled with a student version of Data Desk from Addison-Wesley for under $30. This is an incredible bargain, and one that any student of statistics should take advantage of.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Net Accelerator
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ActivStats combines digitized video and narration, animation, hypertext, simulation, and student activities to both teach the use of Data Desk and the basics of statistics. There are also Web links to additional material and updates. I found ActivStats to be an excellent device for learning about statistics, once I got through the material on how to use the program. The student activities were a particularly welcome mechanism for learning, giving me a visual display of the results of calculations that aided my assimilation of the concepts and methods of statistics.

Data Desk is an excellent tool for exploring data. It's remarkably fast, makes extensive use of icons and the mouse (with the notable exception of ignoring the right mouse button, a result of its Macintosh heritage), and provides excellent visual feedback via color and selection tools to assist in data exploration. There are versions of Data Desk and ActivStats for the Macintosh and Windows, with modest minimum system requirements for each. Thanks in part to the tutorials, I not only passed statistics, I got an A. (Data Description, Inc., 840 Hanshaw Rd., Ste. 9, Ithaca, NY 14850. Sales: 1-800-573-512, URL: *www.datadesk.com* .

Windows Software

NetAccelerator

Published By: IMSI USA
List Price: $29.95
Review By: Ron Enderland

The Internet is huge, essential, free-spirited, overrated, and several other adjectives, depending on whom you ask. All who use it agree, however, that it is one thing: slow.

How do you speed things up?

Well, one way is in making that modem work a little harder. It huffs and puffs while you're downloading a Web page, but when it's finished, it just sits idly by.

IMSI's Net Accelerator makes it earn its keep, downloading pages that are linked to the one that you're browsing. Then when you click on links, the pages come from your cache, rather than over the telephone wires. The result? Sped-up surfing.

NetAccelerator works very well. It starts at the top of the page that you're viewing and diligently downloads each linked page, complete with graphics, sound files, etc. You might have to manually change a few system settings to make it work most efficiently, however.

First, you need a good-sized cache on your hard disk. Set your browser to maintain at least 10MB of cached files. Second, to make sure NetAccelerator does not continue to run while you are downloading a big file via FTP, you will have to hit the pause button.

Keeping these things in mind, you're going to love this program. You'll get used to pages popping up much faster than you've been used to. One final word of warning: If you're using an older computer (such as my Pentium-90), the system will slow down a bit. NetAccelerator requires some processor horsepower. If you're running a 133MHz or faster system with 32MB of RAM, you shouldn't notice a thing. (IMSI USA, 1895 Francisco Blvd. E., San Rafael, CA 94901-5506. 415/257-3000, *www.imsisoft.com*)

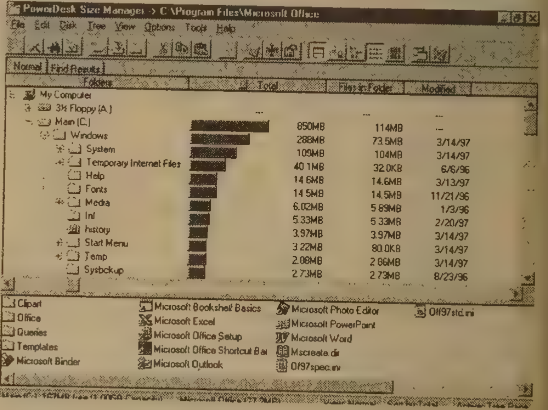
Mijenix PowerDesk Utilities ▼

Published By: Mijenix Corp.
List Price: $39.95
Reviewed By: Ron Enderland

Mijenix' PowerDesk Utilities contains the stuff that should have been included in Windows 95 (and we'll probably be saying the same thing about Windows 98, too).

Included in the package is Explorer Plus, a file management tool designed to replace the familiar Explorer included in the Windows package.

Explorer, the next generation of File Manager, curiously left out many of the handy features of the old 16-bit application. For instance, it doesn't have those handy-dandy drive icons, allowing you to quickly access other drives. You can't form a new window, allowing easy dragging and dropping between different drives or folders. It won't remember what folder that you were in when it was last shut down, instead defaulting to the c: drive root directory each time it's opened.


PowerDesk Size Manager -> C:\Program Files\Microsoft Office
File Edit Disk Tree View Options Tools Help
Normal
Find Results

Folders	Total	Files in Folder	Modified
My Computer			
3½ Floppy (A:)	--	--	--
Main (C:)	850MB	114MB	--
Windows	288MB	73.5MB	3/14/97
System	109MB	104MB	3/14/97
Temporary Internet Files	40.1MB	32.0KB	6/6/96
Help	14.6MB	14.6MB	3/13/97
Fonts	14.5MB	14.5MB	11/21/96
Media	6.02MB	5.89MB	1/3/96
Inf	5.33MB	5.33MB	2/20/97
history	3.97MB	3.97MB	3/14/97
Start Menu	3.22MB	80.0KB	3/14/97
Temp	2.86MB	2.86MB	3/14/97
Sysbckup	2.73MB	2.73MB	8/23/96

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Microsoft Office Setup
Microsoft Office Shortcut Bar
Microsoft Outlook
Microsoft Photo Editor
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Off97spec.inv
Off97std.ini

Well, Explorer Plus replaces those beloved File Manager traits. In addition to handling these tasks, it also has a built-in zipfile viewer that displays the file as a folder. You can view, run, add, or delete files from within the archive by simply clicking, dragging, etc. just as if the zipfile was a regular folder.

Also part of the PowerDesk package is Size Manager, which gives you a graphical picture of where your hard drive space has gone. Folders (and files) are listed with bar graphs indicating their size.

Finally, are you tired of the Windows 95 task bar? Do you wish it would tell you more? If the answer is yes, you'll like the PowerDesk Toolbar. It is a programmable bar that can be configured to display information such as system resources, printers, desktop icons, and a quick Windows exit button.

This is a handy bunch of utilities for the price. I recommend it. (Mijenix Corp., 3030 Sterling Circle, Boulder, CO 80301. 303/245-8000, *www.mijenix.com*) ■

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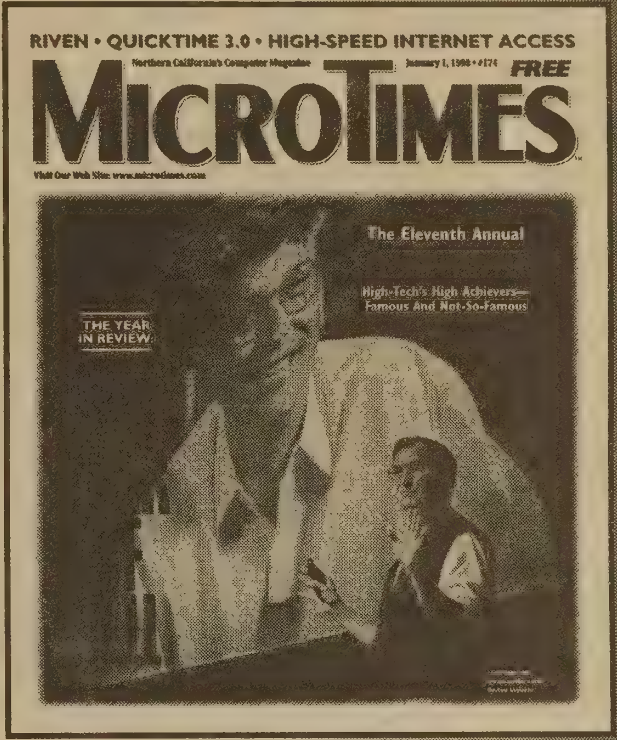
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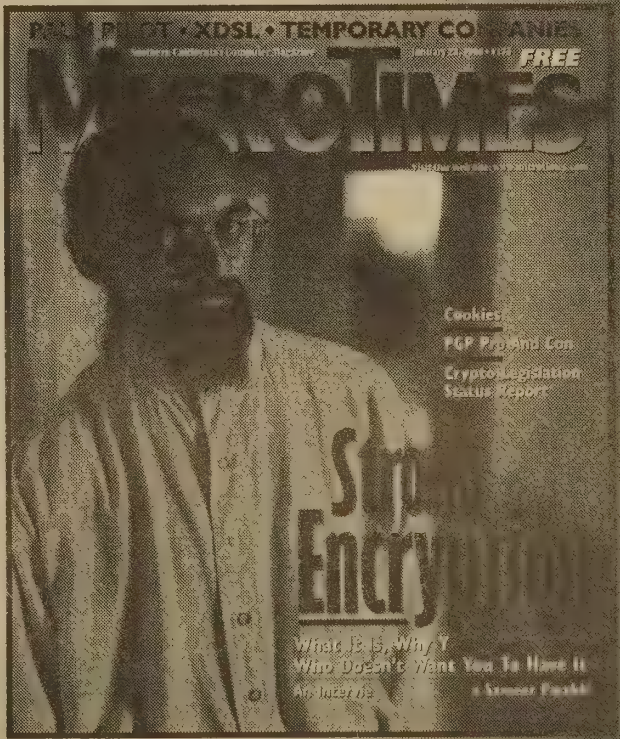
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2.1/3.2/4.3/6.4GB U-DMA33 FUJI 10MS	$135/158/183/248
2.5/3.2/4.3/5.2/7.1GB U-DMA33, Maxtor	$150/169/189/232/295
3.2/4.3/6.4GB Ultra ATA, Quantum ST	$178/190/265
4.3GB IBM Ultra-Wide SCSI	$309
4.5/9.1GB Ultra Wide SCSI, Seagate Cheetah	**$619/1038**
1.2/1.44 MB Teac Floppy Drive	$43/$24
HP T3000 3.2GB Tape Backup	$179
Iomega ZIP 100MB IDE/SCSI Internal drive	$89/116
Iomega Jaz 1GB drive	$282
100MB ZIP disk	$13

BRAND NEW MONITORS
All monitors have 3-year warranty!!!

IIYAMA VISION MASTER (IDEK)	
MT-9017E, 1600x1200@74Hz 17".25 Diamondtron, "1997 product of the year" PC Magazine	$612
S-901GT, 1600x1200@80Hz, .22dp, 19"	$822
MT-9021E, 1600x1200@76Hz, .30dp Diamondtron, 21"	$1178
LP-1014a 15" LCD, 1024*768@75Hz. 10Lbs	$1836
MAG/PRINCETON	
E050, 15" NI .28dp	$269
DX15T, .25dp Trinitron	$336
E090, 19" .26dp 1600*1200	$766
E075, 17" 1600x1200 .26dp	$536
OTHERS	
Mega, 17" 1280x1024 .28dp, OSD	$349
Mega DeluxScan 15" .28dp, OSD	$188
AV2 14" 1024x768 .28dp	**$148**
CASE & POWER SUPPLY	
Supermicro 750A Full tower server with 300W power	$188
IW-Q500 ATX Full Tower with 300W power	$115
IW-500 Mid-Tower AT/ATX with 235w power	$55/$69
Enlight Medium Tower, 6680 250W, 2 fan	$68
Mini Tower, 230W	$25
230W Power supply AT/ATX	$21/$41
300W Power supply AT/ATX	$39/$61

many more servers & cases in demo room

[illegible]	
ISA/PCI Ethernet Card (Combo)	$21
3Com 3C509TPO ISA	$49
3Com 3C900 Combo PCI	$89
3Com 3C905TX 10/100MB PCI	$65
Intel EtherExpress Pro10/100MB PCI	$59
3COM 3C16700 8 PORT HUB	$145
3COM 3C16901A LINKSWITCH 12 PORT	$1889
CISCO SWITCH & ROUTER	$CALL

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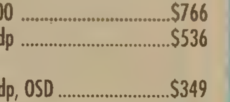

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$2088

- 64MB RAM (128MB: Add $Call)
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- 32X Max CD-ROM
- US Robotics 56.6 Fax Modem (Internet Ready)
- ATI Xpert 8MB AGP or PCI
- Sound Blaster AWE64 Value or Yamaha Sound
- Yamaha Speakers
- TEAC 1.44MB 3.5" Floppy Drive
- Mid Tower Case with Power Supply
- Keytronics Keyboard for Windows 95
- Microsoft Mouse with Pad
- Free Microsoft Windows 95
- **Free MS Home Bundle**

Pentium II-333 (Intel Atlanta) ATX	$2088
Pentium II-300 (Intel Atlanta) ATX	1868
Pentium II-266 (Intel Atlanta) ATX	1708
Pentium II-233 (Intel Atlanta) ATX	1618
Dual Pentium II-300 (Asus) w/1CPU	2088
Pentium II-333 (Asus MB) ATX	2068
Pentium II-300 (Asus M/B) ATX	1848
Pentium II-266 (Asus M/B) ATX	1688
Pentium II-233 (Asus M/B) ATX	1598
Dual PP-200 (Super Micro) w/1CPU	1748
MMX-P233/512K (Intel Anchorage) ATX	1458
MMX-P200/512K (Intel Anchorage) ATX	1388
MMX-P166/512K (Intel Anchorage) ATX	1368
MMX-P233/512K (Asus SP97)	1348
MMX-P200/512K (Asus SP97)	1278

Upgrade With System

Viewsonic G810/G771	$958/417
30-Bit Color Flatbed Scanner	98
Windows NT 4.0 10 Client Server	Best

HI-TECH PROFESSIONAL *Multimedia Systems*

PENTIUM II-233
BUSINESS LEASE
$49/MONTH
$1388

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- Diamond Viper V330 4MB AGP or PCI
- Sound Blaster AWE64 Value or Yamaha Sound
- Yamaha Speakers
- TEAC 1.44MB 3.5" Floppy Drive
- Mid Tower Case with Power Supply
- Keytronics Keyboard for Windows 95
- Microsoft Mouse with Pad
- Free Microsoft Windows 95
- **Free MS Home Bundle**

Pentium II-333 (Intel Atlanta) ATX	$1838
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Pentium II-266 (Intel Atlanta) ATX	1478
Pentium II-233 (Intel Atlanta) ATX	1388
Pentium II-333 (Super Micro) ATX	1798
Pentium II-300 (Super Micro) ATX	1598
Pentium II-266 (Super Micro) ATX	1438
Pentium II-233 (Super Micro) ATX	1348
Pentium II-233 (Intel Portland) ATX	1338
PP-180 (Intel Venus) ATX	1158
MMX-P233/256K (Intel Tucson) ATX	1228
MMX-P200/256K (Intel Tucson) ATX	1158
MMX-P233/512K (Super Micro)	1178
MMX-P200/512K (Super Micro)	1118
MMX-P166/512K (Super Micro)	1088

Upgrade With System

Sony 200SF / 100SF	$608/318
30-Bit Color Flatbed Scanner	98
Windows NT 4.0 Workstation	Best

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MMX-P233
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AVAILABLE
$918

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- ATI Expression+ 2MB
- Sound Blaster 16 PNP or Yamaha Sound
- 180W Speakers
- TEAC 1.44MB 3.5" Floppy Drive
- Mid Tower Case with Power Supply
- Keytronics Keyboard for Windows 95
- Microsoft Mouse with Pad
- Free Microsoft Windows 95
- **Free CD Deluxe Pack**

Internet Ready!

Pentium II-333 (LX440) ATX	$1498
Pentium II-300 (LX440) ATX	1298
Pentium II-266 (LX440) ATX	1148
Pentium II-233 (LX440) ATX	1058
MMX-P233/512K (Super Micro)	918
MMX-P200/512K (Super Micro)	858
MMX-P166/256K (Super Micro)	838
MMX-P233/512K (Asus SP97)	888
MMX-P200/512K (Asus SP97)	828
MMX-P166/512K (Asus SP97)	808
MMX-P233/512K (Intel Triton TX)	878
MMX-P200/512K (Intel Triton TX)	818
MMX-P166/512K (Intel Triton TX)	798
AMD K6-233/512K (Intel Triton TX)	868
Cyrix MX-P200/512K (Intel Triton TX)	788

Upgrade With System

17"/15" SVGA Monitor	$318/174
30-Bit Color Flatbed Scanner	98
Microsoft Office Professional	168

HI-TECH HOME *Multimedia Systems*

CYRIX 6X86-P150+
BUSINESS LEASE
AVAILABLE
$598

- 16MB RAM (32MB/64MB: +$30/90)
- 1.2GB EIDE (2.0GB/4.3GB:+$20/$70)
- 24X Max CD-ROM (32X: Add $30)
- 33.6 Internal Fax Modem w/voice (56.6 w/Voice: +$30) Internet Ready
- D2MB SVGA Card
- PCI IDE with I/O
- 16 Bit 3D Sound Card
- 80W Speakers
- TEAC 1.44MB 3.5" Floppy Drive
- Mid Tower Case with Power Supply
- Keytronics Keyboard for Windows 95
- Free Mouse with Pad
- Free Microsoft Windows 95
- **Free CD Deluxe Pack**

Internet Ready!

MMX-P233/512K (Super Micro)	$788
MMX-P200/512K (Super Micro)	718
MMX-P166/512K (Super Micro)	698
MMX-P233/512K (Asus SP97)	758
MMX-P200/512K (Asus SP97)	688
MMX-P166/512K (Asus SP97)	668
MMX-P233/512K (Intel Triton TX)	748
MMX-P200/512K (Intel Triton TX)	678
MMX-P166/512K (Intel Triton TX)	658
CYRIX MX-P200/512K (Intel Triton TX)	638
AMD K6-233/512K (Intel Triton TX)	708
AMD K6-166/512K (Intel Triton TX)	678
P5-166/256K (Intel Triton VX)	638
P5-150/256K (Intel Triton VX)	628
CYRIC 6X86-P150+/256K (Triton VX)	598

Upgrade With System

15"/14" SVGA Monitor	$174/118
30-Bit Color Flatbed Scanner	98
Microsoft Office Professional	168

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*BASIC SYSTEM: MOTHERBOARD & CPU, 16MB RAM, IDE WITH I/O, 1.44MB FDD, CASE WITH POWER SUPPLY, AND 104-KEY KEYBOARD.

	MOTHER-BOARD	MOTHER-BOARD WITH CPU	* BASIC SYSTEM W/16MB RAM	* BASIC SYSTEM W/64MB RAM
PENTIUM II-333 (INTEL ATLANTA M/B) ATX	$168	$898	$1068	$1178
PENTIUM II-300 (INTEL ATLANTA M/B) ATX	168	688	858	968
PENTIUM II-266 (INTEL ATLANTA M/B) ATX	168	538	708	818
PENTIUM II-233 (INTEL ATLANTA M/B) ATX	168	438	608	718
DUAL PENTIUM II-300 (ASUS P2L97DS) W/1CPU	398	928	1098	1308
PENTIUM II-333 (ASUS M/B) ATX	158	888	1058	1168
PENTIUM II-300 (ASUS M/B) ATX	158	678	848	958
PENTIUM II-266 (ASUS M/B) ATX	158	528	698	808
PENTIUM II-233 (ASUS M/B) ATX	158	428	598	708
PENTIUM II-266 (INTEL PORTLAND M/B) ATX	138	508	678	788
PENTIUM II-233 (INTEL PORTLAND M/B) ATX	138	408	578	698
PENTIUM II-333 (INTEL LX440) ATX	118	848	1018	1128
PENTIUM II-300 (INTEL LX440) ATX	118	638	808	918
PENTIUM II-266 (INTEL LX440) ATX	118	488	658	768
PENTIUM II-233 (INTEL LX440) ATX	118	388	558	668
PP-200C (INTEL VENUS M/B) ATX	88	518	678	758
PP-180C (INTEL VENUS M/B) ATX	88	248	408	488
MMM-P233/512K (Intel Anchorage M/B) ATX	154	348	508	608
MMM-P200/512K (Intel Anchorage M/B) ATX	154	288	448	548
MMM-P166/512K (Intel Anchorage M/B) ATX	154	268	428	528
MMX-P233/256K (Intel Tucson M/B) ATX	118	308	468	548
MMX-P200/256K (Intel Tucson M/B) ATX	118	238	398	478
MMX-P233/256K (SUPER MICRO M/B)	118	318	438	518
MMX-P200/256K (SUPER MICRO M/B)	118	248	368	448
MMX-P166/256K (SUPER MICRO M/B)	118	228	348	428
MMX-P233/256K (ASUS SP 97) (ASUS TX97: +$70)	88	278	398	478
MMX-P200/256K (ASUS SP 97) (ASUS TX97: +$70)	88	208	328	408
MMX-P166/256K (ASUS SP 97) (ASUS TX97: +$70)	88	188	308	388
MMX-P233/512K (INTEL TRITON TX)	78	268	388	468
MMX-P200/512K (INTEL TRITON TX)	78	198	318	398
MMX-P166/512K (INTEL TRITON TX)	78	178	298	378
AMD K6-P233/512K (INTEL TRITON TX)	78	238	358	438
CYRIX MX-P200/512K MMX (INTEL TRITON TX)	78	158	278	358
P5-166/256K (INTEL TRITON VX)	68	168	288	368
P5-150/256K (INTEL TRITON VX)	68	158	278	358

HI-TECH Extreme Notebooks

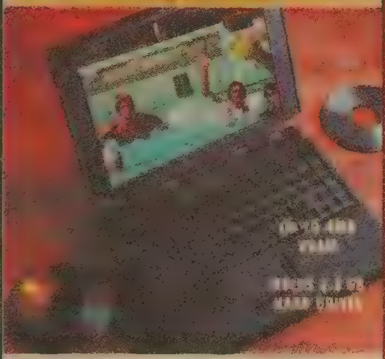
HOLDS UP TO 128MB OF RAM

- 32MB EDO RAM
- 1.4GB Hard Drive
- 16-Bit Stereo
- Modular 20X CD-ROM
- NIMH Battery
- 64-Bit PCI
- 2MB VRAM
- Infrared (FIR)
- Windows 95
- Carrying Case

Options: Port Replicator, Docking Station, Li-Ion Battery, Car adapter, Win NT, Linux 2.0, PCMCIA Fax/Modem or LAN Card.

NOTEBOOK	MMX 166	MMX 200	MMX 233
12.1" DSTN	$1638	$1658	$1728
12.1" TFT	$1748	$1768	$1838

HI-TECH Super Notebooks



UP TO 72MB EDO RAM ON 12.1"
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- 32MB EDO RAM
- 2.1GB Hard Drive
- 2MB/4MB EDO VRAM
- Built-in 20X CD-ROM
- Windows 95
- Infrared (FIR)
- 512K Cache
- 64-bit Graphic Engine
- 16-Bit Stereo
- 3D Sound / Wavetable
- NIMH Battery
- Carrying Case

Options: Port Replicator, Li-Ion Battery, Car adapter, Win NT, PCMCIA Fax/Modem or LAN Card

NOTEBOOK	MMX 166	MMX 200	MMX 233
14.1" TFT	$2668	$2688	$2758
13.3" TFT	$2438	$2458	$2528
12.1" TFT	$2038	$2058	$2128
12.1" DSTN	$1668	$1688	$1758

HI-TECH STARTER
MULTIMEDIA SYSTEM

- Cyrix 6X86 MX-PR 200 Processor
- 16MB System Memory
- 512K Pipelined Cache
- 1.2GB IDE Hard Drive
- 24X Max CD-ROM Drive
- 16 Bit 3D Sound Card
- 33.6K bps Fax/modem w/Voice
- 1MB SVGA Card
- Mini Tower Case with Power Supply
- Keyboard for Windows 95
- 80 Watt Speakers and Mouse
- Microsoft Windows 95 Pre-installed
- Monitor Sold Separately

Internet Ready!

200MHZ $558

BUSINESS LEASE AVAILABLE

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HI-TECH DELUXE
MULTIMEDIA SYSTEM

- 166MHz Intel Pentium Processor w/MMX Technology
- 32MB Memory
- 512K Pipelined Cache
- 2.1GB Hard Drive
- 24X Max CD-ROM
- 33.6K Fax/Modem w/Voice
- 16 Bit 3D Sound Card
- 1MB SVGA Card
- 80W Speakers & Mouse
- Mini Tower Case w/Power Supply
- MS Windows 95 Pre-installed
- Monitor Sold Separately

Internet Ready!

MMX-166 $648

BUSINESS LEASE AVAILABLE

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HI-TECH DREAM
MULTIMEDIA SYSTEM

- 233MHz Intel Pentium Processor w/MMX Technology
- 32MB Memory
- 512K Pipelined Cache
- 4.3GB Hard Drive
- 24X Max CD-ROM
- 33.6K Fax/Modem w/Voice
- Sound Blaster 16 PNP
- 1MB SVGA Card
- Yamaha M7 Speakers & Mouse
- Mini Tower Case w/Power Supply
- MS Windows 95 Pre-installed
- Monitor Sold Separately

Internet Ready!

MMX-233 $818

BUSINESS LEASE AVAILABLE

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HI-TECH POWER
MULTIMEDIA SYSTEM

- 233MHz Intel Pentium II Processor featuring MMX Technology
- 32MB Memory
- 512K Pipelined Cache
- 6.4GB Hard Drive
- 32X Max CD-ROM
- 56K Fax/Modem
- Sound Blaster AWE 64 Value
- ATI 3D Xpression+ w/TV 2MB
- Yamaha M15 Speakers & Mouse
- ATX Mid Tower Case w/PS
- MS Windows 95 Pre-installed
- Monitor Sold Separately

Internet Ready!

Pentium II-233 $1098

BUSINESS LEASE: $39/MONTH

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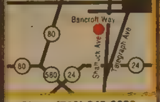

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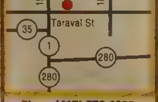

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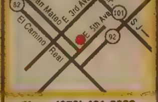

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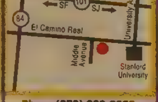

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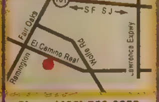

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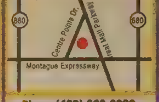

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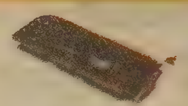
230W / 250W / 300W Power Supply	$17 / 20 / 32
Mini Tower Case w/200W Power Supply	**22**
Desktop AT Case w/200W Power Supply	29
Medium Tower Case w/230W Power Supply	34
Full Tower Case w/250W Power Supply	47
ATX Case w/Power Supply (Mid / Full)	56 / 75

CONTROLLERS



IDE 2FD/2HD with 2S/1P/1G	**$11**

adaptec

1520 (SCSI)	**$64**
2842 VLB (SCSI) Retail	**78**
2940 PCI (SCSI)	**140**
2940U PCI (SCSI)	**149**
2940UW PCI (SCSI)	**165**

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DTC 2280E ISA with 16550 UART Chip	$19

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Quantum™ Maxtor® Seagate WESTERN DIGITAL

IDE 1.2GB / 1.7GB	**$102 / 117**
IDE 2.0GB / 2.5GB	**124/ 134**
IDE 4.3GB / 6.4GB	**164 / 218**
IDE 8.4GB	**318**
SCSI 1.0GB / 2.0GB	**158 / 184**
SCSI 4.0GB / 9.0GB	**268 / 728**
FUJITSU IDE 2.5GB / 3.2GB	**148 / 174**
JTS IDE 1.0GB / 1.2GB	**98 / 103**
JTS IDE 2.0GB	**124**
MAXTOR IDE 2.5GB / 3.2GB	**154 / 168**
MAXTOR IDE 4.3GB	**188**
MAXTOR IDE 8.4GB	**308**
MICROPOLIS SCSI 9.1GB (SCSI III)	**728**
QUANTUM	
IDE 4.3GB Big Foot	**164**
IDE 3.1GB / 3.8GB	**178 / 198**
IDE 6.4GB	**218**
SCSI 2.0GB / 4.3GB	**184 / 268**
SCSI 6.4GB	**358**
SCSI 9.1GB (SCSI III)	**798**
SAMSUNG	
IDE 1.0GB / 2.0GB	**98 / 124**
SEAGATE	
IDE 1.6GB	**118**
SCSI 9.1GB Ultra Wide	**778**
WESTERN DIGITAL	
IDE 1.6GB / 2.0GB	**128 / 134**
IDE 2.5GB / 3.2GB	**144 / 176**
IDE 4.3GB	**204**
FLOPPY DRIVES	
Mitsumi / Teac 1.44 Floppy Drive	$17 / 19
Teac 1.2 Floppy Drive	35

MOUSE

3-Button Mouse Microsoft Compatible	**$5**

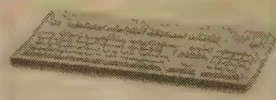
LOGITECH

First Mouse (Serial-2 Button)	**9**
Mouseman Serial / PS2 (OEM)	**14 / 16**

Microsoft

2 Button Serial / PS2 (w/System)	**$20 / 21**
Intelli Serial / PS2 (w/System)	**25**

KEYBOARDS



104-Key Keyboard for Windows 95	$10
FOCUS	
FK2001 for Windows '95	**22**
FK6200W/7200W	**18 / 23**
FK8200 / 9200	34 / 38
Keytronics 104-Key for Windows 95	**15**
Lite-on SK-6000 / SK-6000T	**35 / 52**
Mitsumi 104-Key for Windows 95	**10**
Maxiswitch Nova for Windows 95	**15**
Maxiswitch Nova PS/2	**15**
Microsoft Natural Key (w/System)	**39**

MEMORY & CPU

256K / 512K Cache Memory	**9 / 19**
SIMM	
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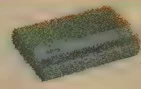

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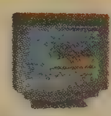

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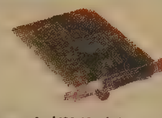

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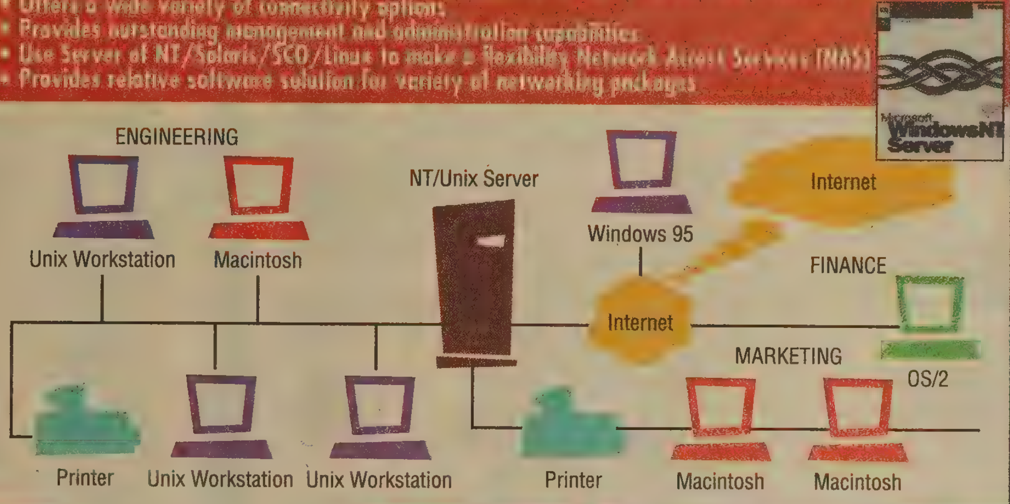

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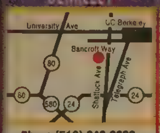

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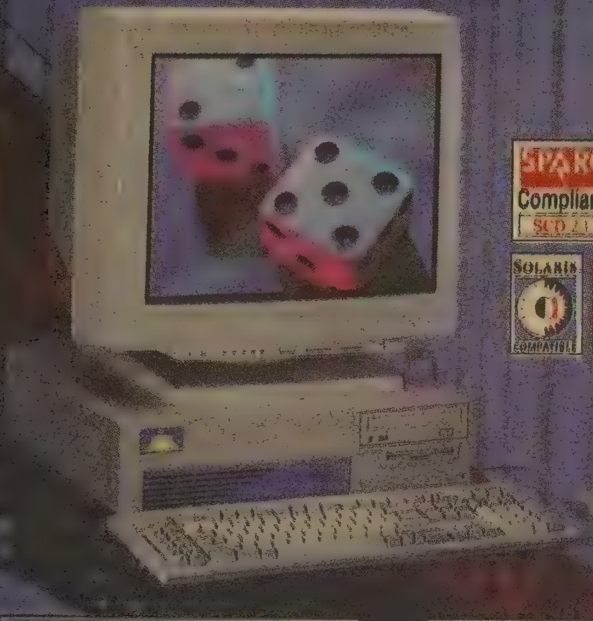

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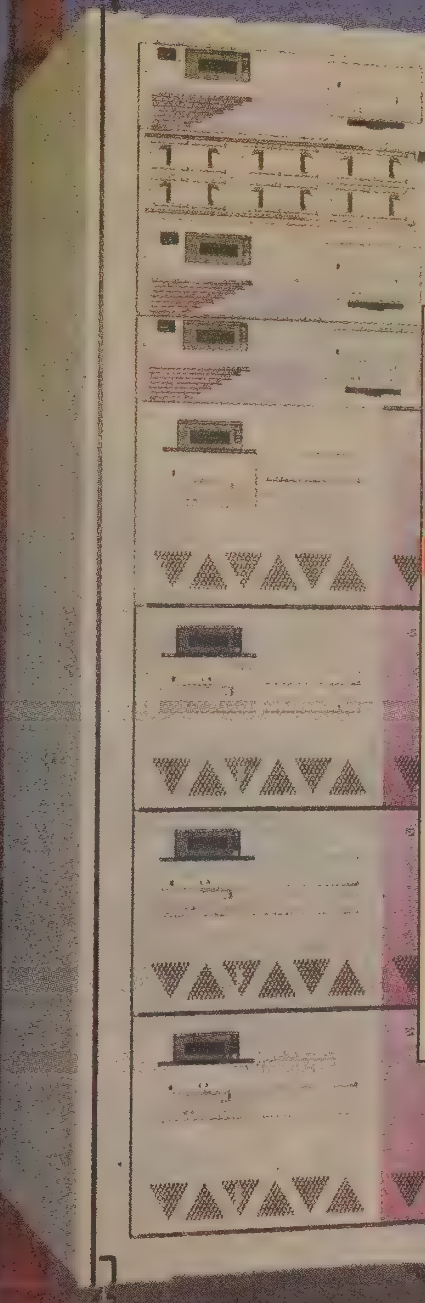

INDUSTRIAL RACKMOUNT SERVER

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$15,688

BUSINESS LEASE $550/MONTH

- Sun Compatible Sparc II/300MHz
- 19" Rackmount Chassis
- UltraSPARC II/300MHZ CPU w/1MB Cache
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- Mechanical Mouse
- Built-In 10 Base-T Ehternet
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Ask for the Other Models

HI-TECH UX 20300 WORKSTATION

ULTRA SPARC II

$14,298

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- System Mainboard w/Chassis & Power Supply
- Ultra II 300MHZ CPU w/2MB Cache
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- GX 1MB VRAM, 1150x900 to 1024x768
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- 1.44MB Floppy Drive
- Sun Type5 Enhanced keyboard
- Sun Mechanical Mouse w/Pad
- Fast SCSI Internal CD-ROM
- Built-In 10 Base-T Ethernet
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OPTIONS: UltraSparc II w/2x300 MHz ....$19,598 ..$686/MO
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Ask for the Other Models

HI-TECH MS 50110 WORKSTATION

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$3,828

BUSINESS LEASE $134/MONTH

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- Sparc 5 110MHZ CPU
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- SVGA Frame Buffer
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- 1.44MB Floppy Drive
- Type 5 Enhance keyboard
- Mechanical Mouse w/Pad
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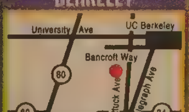

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Fax (510) 843-8858

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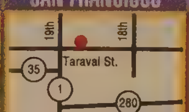
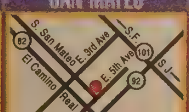


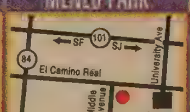
Phone (415) 753-8888
858 Taraval Street, San Francisco
Fax (415) 753-8848

SAN MATEO



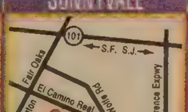
Phone (650) 401-8888
111 E. 5th Avenue, San Mateo
Fax (650) 401-8818

MENLO PARK



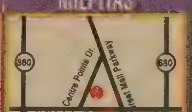
Phone (650) 328-8888
441 El Camino Real, Menlo Park
Fax (650) 328-8880

SUNNYVALE



Phone (408) 732-8888
738 East El Camino Real, Sunnyvale
Fax (408) 732-8388

MILPITAS



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USER GROUPS

continued from page 216

TEXAS INSTRUMENTS

TI-99/4A. Meetings: 2nd Sat., Oakland. Need programs/hardware? Call: Fred, (510)530-8335. [Exp:#179]

UNIX

City College of San Francisco Linux Users Group. Meetings: Every Thurs., 3:00 pm, CCSF Student Union, MLK Center, 50 Phelan Ave., San Francisco. Free and open to all interested in Linux and/or UNIX. Contact: (415)239-3108, or *jhauck01@ccsf.cc.ca.us*. [Exp:#179]

WINDOWS

Bay Area Windows NT User Group. Meetings: 1st Sat., 1:00 pm, San Francisco and Cupertino, see Web site for times and locations. This professional association is for NT systems administrators and developers. Contact: Edwin Rutsch, (510)528-9895, or *edwin@wyp.net*, or *http://www.bantug.org*. [Exp:#181]

Central California Windows NT Users Group. Meetings: 1st Sat., 10:00 am, Oakhurst. Contact: Robert Slovick, (209)683-1499, or *ccwug@inetassist.com*. [Exp:#181]

NT Engineering Association of Silicon Valley (NTEA). Meetings: Second Tues., 6:00 pm, Santa Clara County Office of Education building, 1290 Ridder Park Dr., San Jose. Idea exchange, new technology, job opportunities. Design, set-up, and troubleshooting servers, system administration, and software development issues. No fee for first-time participants. Contact: (408) 437-8803. [Exp:#176]

NT Bay Area NT Users Group (BANTUG). Meetings: 2nd Wed., 6:30 pm, Teknowlogy Education Center, 50 California Street Ste. 1600, San Francisco. Refreshments are provided. Meetings are free. Contact: Edwin Rutsch, (510)528-9895 or *edwin@wyp.net*, or *http://www.bantug.org*. [Exp:#181]

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- MS P/S 2 Mouse
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- MS Windows 95

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- 100W Speakers w/HeadPhone
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ASSOCIATIONS

Association For Women In Computing. Meetings: 1st Wed., 6:00 pm, standing room only, Crocker Galleria, 50 Post St., San Francisco. $10 members, $15 guests. Call: (415) 979-8450. [Exp:#176]

Association of Database Developers (ADD– SF). Barbara Paltiel, (415) 345-0152, *barbara@paltielinc.com*, or *http://www.well.com/user/add/cal.htm*. [Exp:#176]

ICCA Silicon Valley. Meetings: 4th Tues., 6:00 pm, Hobbee's Restaurant, 920 Town and Country Village (Stevens Creek/across from Valley Fair Mall), San Jose. Regularly-scheduled dinner meetings, $25 non-members/$20 members. Contact: Paul Stith, (408)439-0870, ext 2, *info@icca-sv.org*, or *http://www.icca-sv.org*. [Exp:#181]

San Francisco Association of Internet Professionals. A membership- and chapter-driven organization with the ability to unify, support, and represent the global community of Internet professionals. See Web site for meeting times/location. Contact: Jeff Ward, (408) 899-2011, *jward@association.org*, or *http://www.association.org*. [Exp:#181]

Society of Technical Communications, Silicon Valley Chapter. Meetings: 4th Tues., Objectives are to advance the arts and sciences of technical communication. Includes San Mateo, Santa Clara, and Santa Cruz counties. Contact: Gwen Johnson, (408)285-7942, or *Johnson_Gwen@tandem.com*. [Exp:#176]

The Software Forum. Meetings: 3rd Wed., 6:00 pm, Michaels at Shoreline, San Francisco. Call ahead to reserve a place. Contact: Kim Murray (650)854-8298, or *http://www.softwareforum.org*. [Exp:#181]

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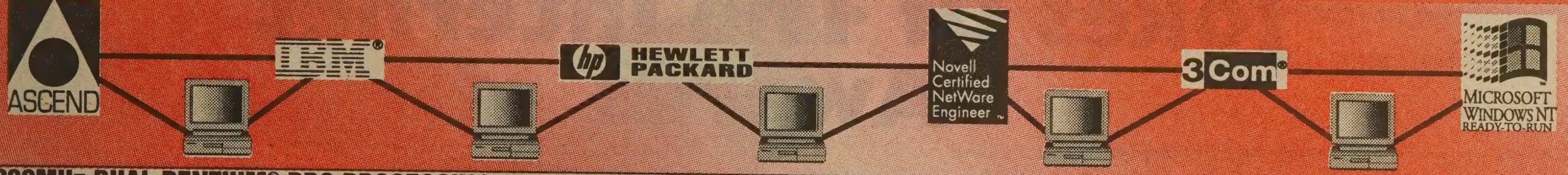
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- 1.44MB FLOPPY DRIVE
- US ROBOTICS 56K FAX/MODEM w/VOICE
- ATI EXPERT@WORK/PLAY AGP 4MB SVGA CARD
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SIMM EDO SDRAM

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QUANTUM 3.5/4.3GB (FIREBALL)	$195/239
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IOMEGA 100MB ZIP DRIVE	$99

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3D 3000 w/4MB WRAM	$149
MATROX	
MILLENNIUM II 4/8MB	$219/278

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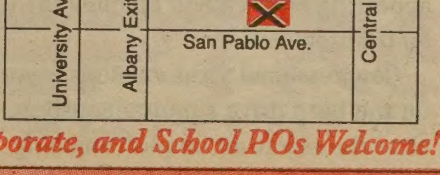

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The Annual Jokes Of The Internet Awards

Tasteless And Otherwise

Once a year I give out my awards for best jokes found on the Internet—those being actively passed around, no matter how old they are. The winners:

Best "Attribute" Joke

Last year there was the "Toaster" joke with the premise "If so-and-so made a toaster..it would be..."

This year's winner is the "Virus" Joke:

If you catch any of these you're in real trouble!!!

Oprah Winfrey Virus: Your 2 gigabyte hard drive suddenly shrinks to 80MB, and then slowly expands back to 2 gigabytes.

Paul Revere Virus: This revolutionary virus does not horse around. It warns you of impending hard disk attack—once if by LAN, twice if by C:\

Politically Correct Virus: Never calls itself a "virus," but instead refers to itself as an "electronic microorganism."

Right To Life Virus: Won't allow you to delete a file, regardless of how old it is. If you attempt to erase a file, it requires you to first see a counselor about possible alternatives.

Ross Perot Virus: Activates every component in your system, just before the whole damn thing quits.

Government Economist Virus: Nothing works, but all your diagnostic software says everything is fine.

Congressional Virus #1: The computer locks up, screens splits erratically with a message appearing on each half blaming the other side for the problem.

Congressional Virus #2: Runs every program on the hard drive simultaneously but doesn't allow the user to accomplish anything.

Airline Virus: You're in Dallas, but your data is in Singapore.

AT&T Virus: Every three minutes it tells you what great service you are getting.

MCI Virus: Every three minutes it reminds you that you're paying too much for the AT&T virus.

Freudian Virus: Your computer becomes obsessed with marrying its own motherboard.

PBS Virus: Your computer stops every few minutes to ask for money...

Elvis Virus: Your computer gets fat, slow and lazy, then self-destructs—only to resurface at shopping malls and service stations across rural America.

Sears Virus: Your data won't appear unless you buy new cables, power supply and a set of shocks.

Jimmy Hoffa Virus: Your programs can never be found again.

Kevorkian Virus: Helps your computer shut down as an act of mercy.

Imelda Marcos Virus: Sings you a song (slightly off key) on boot-up, then subtracts money from your Quicken account and spends it all on expensive shoes it purchases through Prodigy.

Star Trek Virus: Invades your system in places where no virus has gone before.

Health Care Virus: Tests your system for a day, finds nothing wrong and sends you a bill for $4,500.

Chicago Cubs Virus: Your PC makes frequent mistakes and comes in last in the reviews, but you still love it.

O.J. Virus: It claims that it did not, could not and would not delete two of your files and vows to find the virus that did it.

Best Short Joke

When a man turned 90 years old, his three sons decided to surprise him by getting him a prostitute for his birthday. They left him in a motel room and told him they would be back shortly.

A few minutes later this gorgeous 30-year-old blonde knocks on the door. He opens the door, and she says, "Do you want super sex?!"

The man thinks for a moment and replies, "I think I'll have the soup."

Best Insulting Management Joke

Fact: When development engineers go out together on a weekend they talk about football.

Fact: When middle managers get together they talk about tennis.

Fact: Senior executives talk about golf.

Conclusion: The higher you are in management, the smaller your balls are.

Best Microsoft-Related Joke/Joke Of The Year

I believe this to be the joke of the year because it has an interesting depth and harsh commentary of media coverage of Microsoft. Whoever worked up this joke is a marvel:

Bill Gates and Steve Jobs were playing a friendly game of Frisbee at the Gates estate on the shore of Lake Washington. At one point, Bill accidentally sends the Frisbee over Steve's head, and the Frisbee lands in the lake. Steve walks out onto the surface of the lake and retrieves the Frisbee.

The next day the newspapers report:

Gates' Throw Exceeds Expectations

Apple CEO Unable to Swim ■

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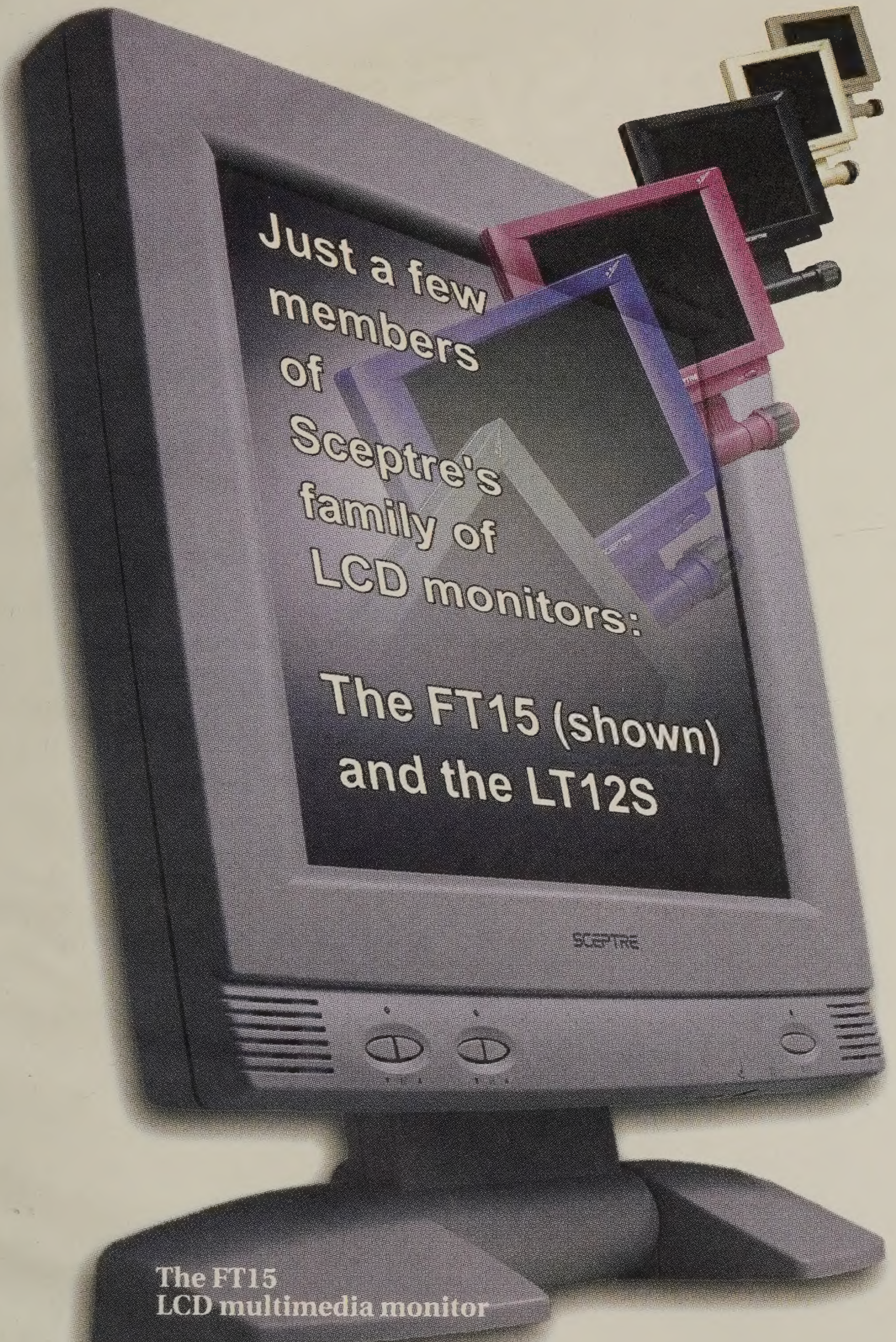
Been There, Done That!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The FT15 (shown) and the LT12S
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LCD multimedia monitor

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Larry Merrick, Vice President, MIS
Encyclopedia Britannica

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Richard Hinson, medical research scientist
Wyeth-Ayerst Research

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